### **CLAIM AMENDMENTS**

1. (Currently Amended) A method of treating or preventing demyelination in a subject, comprising the step of administering to a subject in need of such treatment an effective amount of at least one sterol absorption inhibitor or a pharmaceutically acceptable salt or solvate thereof, wherein the at least one sterol absorption inhibitor is selected from the group consisting of sterol absorption inhibitors represented by the following Formulae:

### (a) Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 $Ar^{3}$ 
 $R^{1}$ 
 $R^{3}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
(I)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of aryl and R<sup>4</sup>-substituted aryl;

Ar is aryl or R -substituted aryl;

X, Y and Z are independently selected from the group consisting of -CH2-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and  $R^2$  are independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$  and  $-O(CO)NR^6R^7$ ;

R<sup>1</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1;

r is 0 or 1;

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5 or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5;

R<sup>4</sup> is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-O(CH_2)_{1-10}$ -COOR<sup>6</sup>,  $-COR^6$ ,  $-COR^6$ ,

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1.5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0.2}R^9$ ,  $-O(CH_2)_{1.10}$ - $-COOR^6$ ,  $-O(CH_2)_{1.10}CONR^6R^7$ ,  $-(Iower alkylene)COOR^6$  and  $-CH=CH-COOR^6$ ;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

### (b) Formula (III):

**(III)** 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (III) above:

Ar<sup>1</sup> is R<sup>3</sup>-substituted aryl;

Ar<sup>2</sup> is R<sup>4</sup>-substituted arvl:

{W0176270.1}

- 3 -

### Ar<sup>3</sup> is R<sup>5</sup>-substituted aryl;

Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

A is selected from -O-, -S-, -S(O)- or -S(O)<sub>2</sub>-;

 $R^{1}$  is selected from the group consisting of  $-O(CO)R^{6}$ ,  $-O(CO)OR^{9}$  and  $-O(CO)NR^{6}R^{7}$ ;  $R^{2}$  is selected from the group consisting of hydrogen, lower alkyl and aryl; or  $R^{1}$  and  $R^{2}$  together are =O;

q is 1, 2 or 3;

p is 0, 1, 2, 3 or 4;

 $R^5$  is 1-3 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^9$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2$ -lower alkyl,  $-NR^6SO_2$ -aryl,  $-CONR^6R^7$ ,  $-CONR^6R^7$ , -CONR

R<sup>3</sup> and R<sup>4</sup> are independently 1-3 substituents independently selected from the group consisting of R<sup>5</sup>, hydrogen, p-lower alkyl, aryl, -NO<sub>2</sub>, -CF<sub>3</sub> and p-halogeno;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

### (c) Formula (IV):

$$Ar^{1}-R^{1}-Q$$

$$O$$

$$Ar^{2}$$

(IV)

-CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^6$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^7$ 's can be the same or different;

and when Q is a bond, R<sup>1</sup> also can be selected from:

where M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6 \text{ alkyl})$ - and  $-C(\text{di-}(C_1-C_6) \text{ alkyl})$ ;

R<sup>10</sup> and R<sup>12</sup> are independently selected from the group consisting of -OR<sup>14</sup>, -O(CO)R<sup>14</sup>, -O(CO)OR<sup>16</sup> and -O(CO)NR<sup>14</sup>R<sup>15</sup>;

 $R^{11}$  and  $R^{13}$  are independently selected from the group consisting of hydrogen,  $(C_1-C_6)$  alkyl and aryl; or  $R^{10}$  and  $R^{11}$  together are =0, or  $R^{12}$  and  $R^{13}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4; provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

R<sup>2</sup> is 1-3 substituents on the ring carbon atoms selected from the group consisting of hydrogen,  $(C_1-C_{10})$ alkyl,  $(C_2-C_{10})$ alkenyl,  $(C_2-C_{10})$ alkenyl,  $(C_2-C_{10})$ alkynyl,  $(C_3-C_6)$ cycloalkyl,  $(C_3-C_6)$ cycloalkenyl, R<sup>17</sup>-substituted aryl, R<sup>17</sup>-substituted benzyl, R<sup>18</sup>-substituted benzyloxy, R<sup>19</sup>-substituted aryloxy, halogeno, -NR<sup>14</sup>R<sup>15</sup>, NR<sup>14</sup>R<sup>15</sup> $(C_1-C_6)$  alkylene)-, NR<sup>14</sup>R<sup>15</sup> $(C_0)$  $(C_1-C_6)$  alkylene)-, NHC(0)R<sup>16</sup>,

OH,  $C_1$ - $C_6$  alkoxy, -OC(O)R<sup>16</sup>, -COR<sup>14</sup>, hydroxy( $C_1$ - $C_6$ )alkyl, ( $C_1$ - $C_6$ )alkoxy( $C_1$ - $C_6$ )alkyl, NO<sub>2</sub>, -S(O)<sub>0-2</sub>R<sup>16</sup>, -SO<sub>2</sub>NR<sup>14</sup>R<sup>15</sup> and -( $C_1$ - $C_6$  alkylene)COOR<sup>14</sup>; when R<sup>2</sup> is a

substituent on a heterocycloalkyl ring,  $R^2$  is as defined, or is =0 or in the substituent on a substitutable ring nitrogen, it is hydrogen,  $(C_1-C_6)$  alkyl, aryl,  $(C_1-C_6)$  alkoxy, aryloxy,  $(C_1-C_6)$  alkylcarbonyl, arylcarbonyl, hydroxy,  $(C_1-C_6)$  alkylcarbonyl, hydroxy, hydroxy

wherein J is -O-, -NH-, -NR<sup>18</sup>- or -CH<sub>2</sub>-;

 $\frac{R^3 \text{ and } R^4 \text{ are independently selected from the group consisting of 1-3} {\text{substituents independently selected from the group consisting of } (C_1-C_6) \text{alkyl, } -OR^{14}, -O(CO)R^{14}, -O(CO)OR^{16}, -O(CH_2)_{1.5}OR^{14}, -O(CO)NR^{14}R^{15}, -NR^{14}R^{15}, -NR^{14}R^{15}, -NR^{14}(CO)R^{15}, -NR^{14}(CO)R^$ 

R<sup>8</sup> is hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>14</sup> or -COOR<sup>14</sup>;

 $R^9$  and  $R^{17}$  are independently 1-3 groups independently selected from the group consisting of hydrogen,  $(C_1-C_6)$ alkyl,  $(C_1-C_6)$ alkoxy, -COOH,  $NO_2$ , -NR $^{14}$ R $^{15}$ , OH and halogeno;

 $R^{14}$  and  $R^{15}$  are independently selected from the group consisting of hydrogen,  $(C_1-C_6)$  alkyl, aryl and aryl-substituted  $(C_1-C_6)$  alkyl;

R<sup>16</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>17</sup>-substituted aryl;

 $R^{18}$  is hydrogen or  $(C_1-C_6)$  alkyl; and

R<sup>19</sup> is hydrogen, hydroxy or (C<sub>1</sub>-C<sub>6</sub>)alkoxy;

- 7 -

### (d) Formula (V):

$$Ar^{1} \times_{m} \stackrel{R}{\underset{R^{1}}{|}} Y_{n} \stackrel{S(O)_{r}}{\longrightarrow} Ar^{2}$$

$$0 \qquad Ar^{3} \qquad (V)$$

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (V) above:

Ar is aryl, R -substituted aryl or heteroaryl;

Ar<sup>2</sup> is aryl or R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X and Y are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R is  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$  or  $-O(CO)NR^6R^7$ ; R<sup>1</sup> is hydrogen, lower alkyl or aryl; or R and R<sup>1</sup> together are =O;

q is 0 or 1;

r is 0, 1 or 2;

m and n are independently 0, 1, 2, 3, 4 or 5; provided that the sum of m, n and q is 1, 2, 3, 4 or 5;

 $R^{4} \text{ is } 1\text{-}5 \text{ substituents independently selected from the group consisting of lower alkyl, } -OR^{6}, -O(CO)R^{6}, -O(CO)OR^{9}, -O(CH_{2})_{1\text{-}5}OR^{6}, -O(CO)NR^{6}R^{7}, \\ -NR^{6}R^{7}, -NR^{6}(CO)R^{7}, -NR^{6}(CO)OR^{9}, -NR^{6}(CO)NR^{7}R^{8}, -NR^{6}SO_{2}R^{9}, -COOR^{6}, \\ -CONR^{6}R^{7}, -COR^{6}, -SO_{2}NR^{6}R^{7}, S(O)_{0\text{-}2}R^{9}, -O(CH_{2})_{1\text{-}10}\text{-}COOR^{6}, \\ -O(CH_{2})_{1\text{-}10}CONR^{6}R^{7}, -(lower alkylene)COOR^{6} \text{ and } -CH=CH-COOR^{6}; \\ -O(CH_{2})_{1\text{-}10}CONR^{6}R^{7}, -(lower alkylene)COOR^{6}R^{7}, -(lower alkylene)COOR$ 

 $\frac{R^5 \text{ is } 1\text{--}5 \text{ substituents independently selected from the group consisting of }}{-OR^6, -O(CO)R^6, -O(CO)OR^9, -O(CH_2)_{1\text{--}5}OR^6, -O(CO)NR^6R^7, -NR^6R^7, -NR^6(CO)R^7, -NR^6(CO)NR^7R^8, -NR^6SO_2R^9, -COOR^6, -CONR^6R^7, -COR^6, -CONR^6R^7, -COR^6, -CONR^6R^7, -COR^6, -CONR^6R^7, -CONR$ 

-8-

## -(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl;

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl; and

 $\frac{R^{10} \text{ is } 1\text{-}5 \text{ substituents independently selected from the group consisting of lower alkyl, } -OR^6, -O(CO)R^6, -O(CO)OR^9, -O(CH_2)_{1\text{-}5}OR^6, -O(CO)NR^6R^7, \\ -NR^6R^7, -NR^6(CO)R^7, -NR^6(CO)OR^9, -NR^6(CO)NR^7R^8, -NR^6SO_2R^9, -COOR^6, \\ -CONR^6R^7, -COR^6, -SO_2NR^6R^7, -S(O)_{0\text{-}2}R^9, -O(CH_2)_{1\text{-}10}\text{-}COOR^6, \\ -O(CH_2)_{1\text{-}10}CONR^6R^7, -CF_3, -CN, -NO_2 \text{ and halogen;}$ 

### (e) Formula (VI):

$$R_4$$
 $R_1$ 
 $R_2$ 
 $R_3$ 
 $R_{20}$ 
 $R_{21}$ 
 $R_{21}$ 
 $R_{20}$ 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

-CH-, -C(lower alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>5</sub>)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sub>15</sub>)-, -
$$\frac{1}{N}$$
 or  $\frac{1}{N}$  O ;

R2 and R3 are independently selected from the group consisting of:

-CH2-, -CH(lower alkyl)-, -C(di-lower alkyl)-, -CH=CH- and -C(lower alkyl)=CH-; or

R1 together with an adjacent R2, or R1 together with an adjacent R3, form a

-CH=CH- or a -CH=C(lower alkyl)- group;

u and v are independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sub>2</sub> is -CH=CH- or -C(lower alkyl)=CH-, v is 1; provided that when R<sub>3</sub> is

-CH=CH- or -C(lower alkyl)=CH-, u is 1; provided that when v is 2 or 3, the R2's can be the same or different; and provided that when u is 2 or 3, the R3's can be the same or different;

<u>R4 is selected from B-(CH2)mC(O)-, wherein m is 0, 1, 2, 3, 4 or 5;</u> <u>B-(CH2)q-, wherein q is 0, 1, 2, 3, 4, 5 or 6;</u>

B-(CH<sub>2</sub>)<sub>e</sub>-Z-(CH<sub>2</sub>)<sub>r</sub>-, wherein Z is -O-, -C(O)-, phenylene, -N(R<sub>8</sub>)- or -S(O)<sub>0-2</sub>-, e is 0, 1, 2, 3, 4 or 5 and r is 0, 1, 2, 3, 4 or 5, provided that the sum of e and r is 0, 1, 2, 3, 4, 5 or 6;

B-(C2-C6 alkenylene)-;

B-(C<sub>4</sub>-C<sub>6</sub> alkadienylene)-;

B-(CH<sub>2</sub>)t-Z-(C<sub>2</sub>-C<sub>6</sub> alkenylene)-, wherein Z is as defined above, and wherein t is 0, 1, 2 or 3, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1, 2, 3, 4 or 5 and g is 0, 1, 2, 3, 4 or 5, provided that the sum of f and g is 1, 2, 3, 4, 5 or 6; B-(CH<sub>2</sub>)<sub>f</sub>-V-(C<sub>2</sub>-C<sub>6</sub> alkenylene)- or

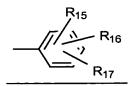
B-(C2-C6 alkenylene)-V-(CH2)t-, wherein V and t are as defined above, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>a</sub>-Z-(CH<sub>2</sub>)<sub>b</sub>-V-(CH<sub>2</sub>)<sub>d</sub>-, wherein Z and V are as defined above and a, b and d are independently 0, 1, 2, 3, 4, 5 or 6, provided that the sum of a, b and d is 0, 1, 2, 3, 4, 5 or 6; or T-(CH<sub>2</sub>)<sub>s</sub>-, wherein T is cycloalkyl of 3-6 carbon atoms and s is 0, 1, 2, 3, 4, 5 or 6; or

R1 and R4 together form the group B-CH=C-;

B is selected from indanyl, indenyl, naphthyl, tetrahydronaphthyl, heteroaryl or W-substituted heteroaryl, wherein heteroaryl is selected from the group consisting of pyrrolyl, pyridinyl, pyrimidinyl, pyrazinyl, triazinyl, imidazolyl, thiazolyl, pyrazolyl, thienyl, oxazolyl and furanyl, and for nitrogen-containing heteroaryls, the N-oxides thereof, or

- 10 -



 $N(R_8)(R_9)C(O)$  (lower alkylenyloxy)- and  $R_{13}$  for substitution on ring carbon atoms,

and the substituents on the substituted heteroaryl ring nitrogen atoms, when present, are selected from the group consisting of lower alkyl, lower alkoxy, -C(O)OR<sub>10</sub>, -C(O)R<sub>10</sub>, OH, N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylene-,N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylenyloxy-, -S(O)<sub>2</sub>NH<sub>2</sub> and 2-(trimethylsilyl)-ethoxymethyl;

R7 is 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, -COOH, NO2, -N(R8)(R9), OH, and halogeno;

R8 and R9 are independently selected from H or lower alkyl;

R<sub>10</sub> is selected from lower alkyl, phenyl, R<sub>7</sub>-phenyl, benzyl or R<sub>7</sub>-benzyl;

R<sub>11</sub> is selected from OH, lower alkyl, phenyl, benzyl, R<sub>7</sub>-phenyl or R<sub>7</sub>-benzyl;

R<sub>12</sub> is selected from H, OH, alkoxy, phenoxy, benzyloxy,

- N R<sub>13</sub>, -N(R<sub>8</sub>)(R<sub>9</sub>), lower alkyl, phenyl or R<sub>7</sub>-phenyl;

R<sub>13</sub> is selected from -O-, -CH<sub>2</sub>-, -NH-, -N(lower alkyl)- or -NC(O)R<sub>19</sub>;

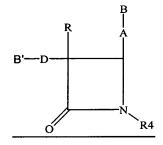
{W0176270.1} - 11 -

R<sub>15</sub>, R<sub>16</sub> and R<sub>17</sub> are independently selected from the group consisting of H and the groups defined for W; or R<sub>15</sub> is hydrogen and R<sub>16</sub> and R<sub>17</sub>, together with adjacent carbon atoms to which they are attached, form a dioxolanyl ring;

R<sub>19</sub> is H, lower alkyl, phenyl or phenyl lower alkyl; and

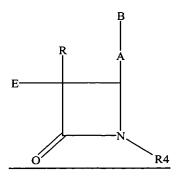
R20 and R21 are independently selected from the group consisting of phenyl, W-substituted phenyl, naphthyl, W-substituted naphthyl, indanyl, indenyl, tetrahydronaphthyl, benzodioxolyl, heteroaryl, W-substituted heteroaryl, benzofused heteroaryl, W-substituted benzofused heteroaryl and cyclopropyl, wherein heteroaryl is as defined above;

### (f) Formula (VIIA) or (VIIB):



(VIIA)

<u>or</u>



(VIIB)

or a pharmaceutically acceptable salt or solvate thereof, wherein:

A is -CH=CH-, -C $\equiv$ C- or -(CH<sub>2</sub>)<sub>p</sub>- wherein p is 0, 1 or 2; B is

- 12 -

$$\begin{array}{c} R_1 \\ R_2 \\ R_3 \end{array}$$

<u>B' is</u>

D is -(CH<sub>2</sub>)<sub>m</sub>C(O)- or -(CH<sub>2</sub>)<sub>q</sub>- wherein m is 1, 2, 3 or 4 and q is 2, 3 or 4;

E is C<sub>10</sub> to C<sub>20</sub> alkyl or -C(O)-(C<sub>9</sub> to C<sub>19</sub>)-alkyl, wherein the alkyl is straight or branched, saturated or containing one or more double bonds;

R is hydrogen, C<sub>1</sub>-C<sub>15</sub> alkyl, straight or branched, saturated or containing one or more double bonds, or B-(CH<sub>2</sub>)<sub>r</sub> -, wherein r is 0, 1, 2, or 3;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> are independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, carboxy, NO<sub>2</sub>, NH<sub>2</sub>, OH, halogeno, lower alkylamino, dilower alkylamino, -NHC(O)OR<sub>5</sub>, R<sub>6</sub>O<sub>2</sub>SNH- and -S(O)<sub>2</sub>NH<sub>2</sub>;

<u>R4\_is</u>

$$(OR_5)_n$$

wherein n is 0, 1, 2 or 3;

R5 is lower alkyl; and

R<sub>6</sub> is OH, lower alkyl, phenyl, benzyl or substituted phenyl wherein the substituents are 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, carboxy, NO<sub>2</sub>, NH<sub>2</sub>, OH, halogeno, lower alkylamino and dilower alkylamino;

(g) Formula (VIII):

$$Ar^{1}-R^{1}-Q$$
 $R^{26}$ 
 $N$ 
 $Ar^{2}$ 

(VIII)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (VIII) above,

 $R^{26}$  is H or  $OG^1$ ;

G and G<sup>1</sup> are independently selected from the group consisting of

$$\underline{H}_{1} = \begin{array}{c} OR^{5} OR^{4} & OR^{5} OR^{4} & OR^{7} \\ O OR^{7} OR^{7} & OR^{7} OR^{7} & OR^{7} OR^{7} \\ O OR^{7} OR^{7} & OR^{7} OR^{7} & OR^{7} OR^{7} \\ O OR^{7} OR^{7} & OR^{7} OR^{7} OR^{7} & OR^{7} OR^{7} \\ O OR^{7} OR^{7} & OR^{7} OR^{7} OR^{7} OR^{7} OR^{7} OR^{7} OR^{7} \\ O OR^{7} OR$$

OH, G is not H;

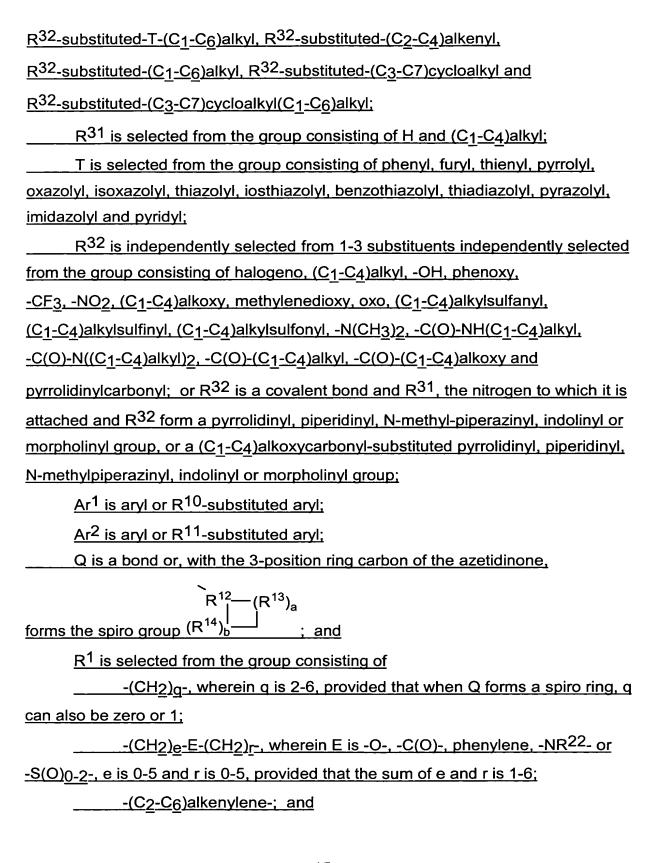
R, R<sup>a</sup> and R<sup>b</sup> are independently selected from the group consisting of H, -OH, halogeno, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)-alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R $^{31}$ )-, -NH-C(O)-N(R $^{31}$ )- and -O-C(S)-N(R $^{31}$ )-;

R<sup>2</sup> and R<sup>6</sup> are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl(C1-C6)alkyl;

R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>3a</sup> and R<sup>4a</sup> are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl and -C(O)aryl;

R<sup>30</sup> is selected from the group consisting of R<sup>32</sup>-substituted T,



-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6;

R<sup>12</sup> is

-CH-, -C(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sup>23</sup>)-, -N-, or 
$$-^{+}NO^{-}$$
;

R<sup>13</sup> and R<sup>14</sup> are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C1-C6 alkyl)-, -C(di-(C1-C6) alkyl), -CH=CH- and -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when R13 is -CH=CH- or -C(C1-C6 alkyl)=CH-, a is 1; provided that when R14 is -CH=CH- or -C(C1-C6 alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the R14's can be the same or different; and when Q is a bond, R<sup>1</sup> also can be:

M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of -CH2-, -CH(C1-C6)alkyl- and -C(di-(C1-C6)alkyl);

R<sup>10</sup> and R<sup>11</sup> are independently selected from the group consisting of 1-3 substituents independently selected from the group consisting of (C1-C6)alkyl, -OR<sup>19</sup>, -O(CO)R<sup>19</sup>, -O(CO)OR<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1-5</sub>OR<sup>19</sup>, -O(CO)NR19R20, -NR19R20, -NR19(CO)R20, -NR19(CO)OR21, -NR<sup>19</sup>(CO)NR<sup>20</sup>R<sup>25</sup>, -NR<sup>19</sup>SO<sub>2</sub>R<sup>21</sup>, -COOR<sup>19</sup>, -CONR<sup>19</sup>R<sup>20</sup>, -COR<sup>19</sup>, -SO<sub>2</sub>NR<sup>19</sup>R<sup>20</sup>, S(O)<sub>0-2</sub>R<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>-COOR<sup>19</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>CONR<sup>19</sup>R<sup>20</sup>, -(C1-C6 alkylene)-COOR<sup>19</sup>, -CH=CH-COOR<sup>19</sup>, -CF<sub>3</sub>, -CN, -NO<sub>2</sub> and halogen; - 16 -{W0176270.1}

R<sup>15</sup> and R<sup>17</sup> are independently selected from the group consisting of -OR<sup>19</sup>, -O(CO)R<sup>19</sup>, -O(CO)OR<sup>21</sup> and -O(CO)NR<sup>19</sup>R<sup>20</sup>;

R<sup>16</sup> and R<sup>18</sup> are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl and aryl; or R<sup>15</sup> and R<sup>16</sup> together are =0, or R<sup>17</sup> and R<sup>18</sup> together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and

provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

$$R_{i}^{15}$$
 $-X_{j}^{-}(C)_{v}^{-}Y_{k}^{-}S(O)_{0-2}^{-}$ 
 $R_{i}^{16}$ 

and when Q is a bond and R<sup>1</sup> is R<sup>16</sup>, Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

R21 is (C1-C6)alkyl, aryl or R24-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>;

R<sup>23</sup> and R<sup>24</sup> are independently 1-3 groups independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, -COOH, NO<sub>2</sub>,

-NR<sup>19</sup>R<sup>20</sup>, -OH and halogeno; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy; and

(h) Formula (IX):

$$Ar^1$$
 $R^{26}$ 
 $R^8$ 
 $R^8$ 
 $R^2$ 
 $R^{1}$ 
 $R^{26}$ 
 $R^{26}$ 
 $R^{26}$ 

or a pharmaceutically acceptable salt or solvate thereof, wherein in Formula (IX):

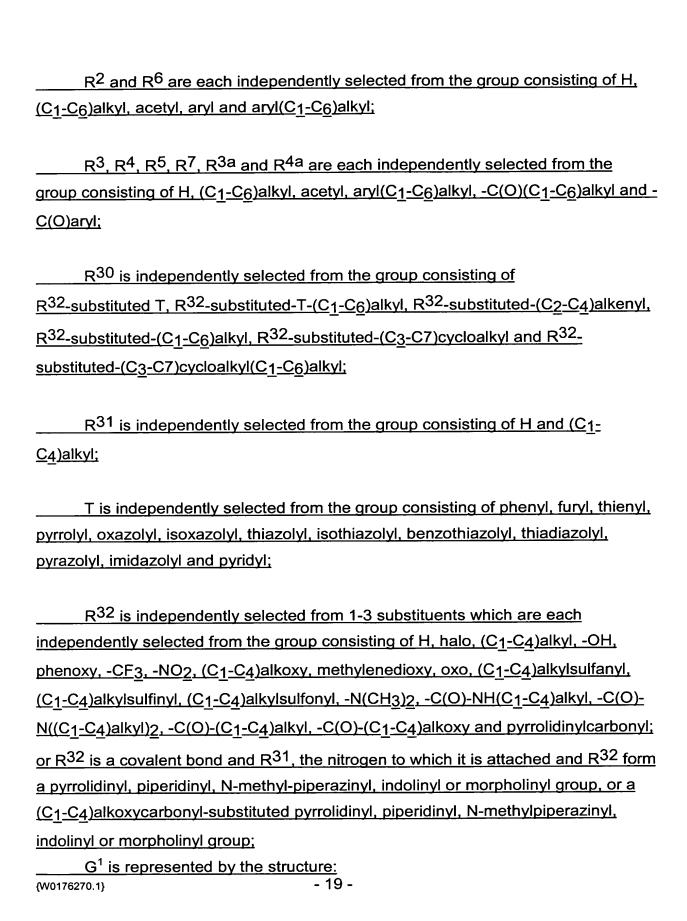
R<sup>1</sup> is selected from the group consisting of H, G, G<sup>1</sup>, G<sup>2</sup>, -SO<sub>3</sub>H and -PO<sub>3</sub>H;

G is selected from the group consisting of: H,

$$R^{5}O$$
  $OR^{4}$   $R^{5}O$   $OR^{4}$   $OR^{7}$   $O$ 

wherein R, R<sup>a</sup> and R<sup>b</sup> are each independently selected from the group consisting of H, -OH, halo, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R<sup>31</sup>)-, -NH-C(O)-N(R<sup>31</sup>)- and -O-C(S)-N(R<sup>31</sup>)-;



wherein R<sup>33</sup> is independently selected from the group consisting of unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, (R<sup>35</sup>)(R<sup>36</sup>)alkyl-,

R<sup>34</sup> is one to three substituents, each R<sup>34</sup> being independently selected from the group consisting of HOOC-, HO-, HS-, (CH<sub>3</sub>)S-, H<sub>2</sub>N-, (NH<sub>2</sub>)(NH)C(NH)-, (NH<sub>2</sub>)C(O)- and HOOCCH(NH<sub>3</sub><sup>+</sup>)CH<sub>2</sub>SS-;

R<sup>35</sup> is independently selected from the group consisting of H and NH<sub>2</sub>-;

R<sup>36</sup> is independently selected from the group consisting of H, unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, unsubstituted cycloalkyl and R<sup>34</sup>-substituted cycloalkyl;

G<sup>2</sup> is represented by the structure:

wherein R<sup>37</sup> and R<sup>38</sup> are each independently selected from the group consisting of (C<sub>1</sub>-C<sub>6</sub>)alkyl and aryl;

R<sup>26</sup> is one to five substituents, each R<sup>26</sup> being independently selected from the group consisting of:

- a) H;
- b) -OH;
- c) -OCH<sub>3</sub>;
- d) fluorine;

{W0176270.1}

- e) chlorine;
- f) –O-G;
- g) -O-G<sup>1</sup>;
- h) -O-G<sup>2</sup>;
- i) -SO<sub>3</sub>H; and
- i)  $-PO_3H$ ;

provided that when R<sup>1</sup> is H, R<sup>26</sup> is not H, -OH, -OCH<sub>3</sub> or -O-G;

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl, heteroaryl or R<sup>10</sup>-substituted heteroaryl;

Ar<sup>2</sup> is aryl, R<sup>11</sup>-substituted aryl, heteroaryl or R<sup>11</sup>-substituted heteroaryl;

L is selected from the group consisting of:

- a) a covalent bond;
- b)  $-(CH_2)_q$ -, wherein q is 1-6;
- c) -(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>-, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;
- d)  $-(C_2-C_6)$ alkenylene-;
- e) -(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub>cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6; and

\_\_\_\_f)\_\_\_\_

wherein M is -O-, -S-, -S(O)- or  $-S(O)_2$ -;

X, Y and Z are each independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6)$ alkyl- and  $-C(di-(C_1-C_6)$ alkyl)-;

# R<sup>8</sup> is selected from the group consisting of H and alkyl;

R <sup>10</sup> and R <sup>11</sup> are each independently selected from the group consisting of 1-
3 substituents which are each independently selected from the group consisting of
(C1-C6)alkyl, -OR19, -O(CO)R19, -O(CO)OR21, -O(CH2)1-5OR19, -
O(CO)NR <sup>19</sup> R <sup>20</sup> , -NR <sup>19</sup> R <sup>20</sup> , -NR <sup>19</sup> (CO)R <sup>20</sup> , -NR <sup>19</sup> (CO)OR <sup>21</sup> ,
-NR <sup>19</sup> (CO)NR <sup>20</sup> R <sup>25</sup> , -NR <sup>19</sup> SO <sub>2</sub> R <sup>21</sup> , -COOR <sup>19</sup> , -CONR <sup>19</sup> R <sup>20</sup> , -COR <sup>19</sup> , -
<u>SO2NR<sup>19</sup>R<sup>20</sup>, S(O)<sub>0-2</sub>R<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>-COOR<sup>19</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>CONR<sup>19</sup>R<sup>20</sup>, -</u>
(C1-C6 alkylene)-COOR <sup>19</sup> , -CH=CH-COOR <sup>19</sup> , -CF3, -CN, -NO2 and halo;
$R^{15}$ and $R^{17}$ are each independently selected from the group consisting of $-OR^{19}$ , $-OC(O)R^{19}$ , $-OC(O)OR^{21}$ , $-OC(O)NR^{19}R^{20}$ ;
$R^{16}$ and $R^{18}$ are each independently selected from the group consisting of H, $(C_1-C_6)$ alkyl and aryl;
or R <sup>15</sup> and R <sup>16</sup> together are =O, or R <sup>17</sup> and R <sup>18</sup> together are =O;
d is 1, 2 or 3;
h is 0, 1, 2, 3 or 4;
s is 0 or 1;
t is 0 or 1;
m, n and p are each independently selected from 0-4;
provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6;
provided that when p is 0 and t is 1, the sum of m, n and p is 1-5; and provided that
when p is 0 and s is 1, the sum of m, t and n is 1-5;
v is 0 or 1;
j and k are each independently 1-5, provided that the sum of j, k and v is 1-5;

Q is a bond, -(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 1-6, or, with the 3-position ring carbon of the azetidinone, forms the spiro group

$$R^{12}$$
  $(R^{13})_a$   $(R^{14})_b$   $\vdots$ 

wherein R12 is

-CH-, -C(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sup>23</sup>)-, -N-, or 
$$-$$
<sup>+</sup>NO<sup>-</sup>;

R<sup>13</sup> and R<sup>14</sup> are each independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are each independently 0, 1, 2 or 3, provided both are not zero;

provided that when R<sup>13</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that

when R<sup>14</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or

3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the

R<sup>14</sup>'s can be the same or different;

and when Q is a bond and L is

then Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

R21 is (C1-C6)alkyl, aryl or R24-substituted aryl;

R22 is H, (C1-C6)alkyl, aryl (C1-C6)alkyl, -C(O)R19 or -COOR19;

R<sup>23</sup> and R<sup>24</sup> are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, -COOH, NO<sub>2</sub>, -NR<sup>19</sup>R<sup>20</sup>, -OH and halo; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy.

2. (Original) The method according to claim 1, wherein the at least one sterol absorption inhibitor is represented by Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 $Ar^{3}$ 
 $R^{1}$ 
 $R^{3}$ 
 $Ar^{2}$ 
(I)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of aryl and R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and R<sup>2</sup> are independently selected from the group consisting of -OR<sup>6</sup>, -O(CO)R<sup>6</sup>, -O(CO)OR<sup>9</sup> and -O(CO)NR<sup>6</sup>R<sup>7</sup>;

- 24 -

R<sup>1</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1; r is 0 or 1;

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5 or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-\mathsf{OR}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{R}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{OR}^9$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1\text{-}5}\mathsf{OR}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{NR}^6\mathsf{R}^7$ ,  $-\mathsf{NR}^6\mathsf{R}^7$ ,  $-\mathsf{NR}^6\mathsf{(CO)}\mathsf{R}^7$ ,  $-\mathsf{NR}^6\mathsf{(CO)}\mathsf{OR}^9$ ,  $-\mathsf{NR}^6\mathsf{(CO)}\mathsf{NR}^7\mathsf{R}^8$ ,  $-\mathsf{NR}^6\mathsf{SO}_2\mathsf{R}^9$ ,  $-\mathsf{COOR}^6$ ,  $-\mathsf{CONR}^6\mathsf{R}^7$ ,  $-\mathsf{COR}^6$ ,  $-\mathsf{SO}_2\mathsf{NR}^6\mathsf{R}^7$ ,  $\mathsf{S}(\mathsf{O})_{0\text{-}2}\mathsf{R}^9$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1\text{-}10}\text{-}\mathsf{COOR}^6$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1\text{-}10}\mathsf{CONR}^6\mathsf{R}^7$ , -(lower alkylene) $\mathsf{COOR}^6$ , -CH=CH-COOR $^6$ , -CF $_3$ , -CN, -NO $_2$  and halogen;

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}$ - $-COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(Iower alkylene)COOR^6$  and  $-CH=CH-COOR^6$ ;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl.

- 3. (Cancel).
- 4. (Cancel).
- 5. (Cancel).
- 6. (Cancel).

- 25 -

{W0176270.1}

- 7. (Cancel).
- 8. (Cancel).
- 9. (Cancel).
- 10. (Original) The method according to claim 1, wherein the at least one sterol absorption inhibitor is administered to a subject in an amount ranging from about 0.1 to about 1000 milligrams of sterol absorption inhibitor per day.
- 11. (Original) The method according to claim 1, further comprising the step of administering at least one antidemyelination agent to the subject.
- 12. (Original) The method according to claim 11, wherein the antidemyelination agent is selected from the group consisting of beta interferon, glatiramer acetate and corticosteroids.
- 13. (Original) The method according to claim 1, further comprising the step of administering at least one HMG CoA reductase inhibitor to the subject.
- 14. (Original) The method according to claim 13, wherein the at least one HMG CoA reductase inhibitor is atorvastatin.
- 15. (Original) The method according to claim 13, wherein the at least one HMG CoA reductase inhibitor is simvastatin.
- 16. (Original) The method according to claim 1, wherein the subject has multiple sclerosis.
- 17. (Original) A method of treating or preventing demyelination in a subject is provided, comprising the step of administering to a subject in need of such

{W0176270.1} - 26 -

treatment an effective amount of at least one sterol absorption inhibitor represented by Formula (II) below:

(II)

or a pharmaceutically acceptable salt or solvate thereof.

- 18. (Original) A method of treating or preventing multiple sclerosis in a subject, comprising the step of administering to a subject in need of such treatment an effective amount of at least one sterol absorption inhibitor or a pharmaceutically acceptable salt or solvate thereof.
- 19. (Currently Amended) A composition comprising: (a) at least one sterol absorption inhibitor or a pharmaceutically acceptable salt or solvate thereof and (b) at least one antidemyelination agent, wherein the at least one sterol absorption inhibitor is selected from the group consisting of sterol absorption inhibitors represented by the following Formulae:

#### (a) Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 $Ar^{3}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

{W0176270.1}

Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of aryl and R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X, Y and Z are independently selected from the group consisting of -CH2-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and R<sup>2</sup> are independently selected from the group consisting of -OR<sup>6</sup>,
-O(CO)R<sup>6</sup>. -O(CO)OR<sup>9</sup> and -O(CO)NR<sup>6</sup>R<sup>7</sup>:

R<sup>1</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1;

r is 0 or 1;

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5 or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}$ - $-COOR^6$ ,  $-CF_3$ ,  $-CN_1$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(lower alkylene)COOR^6$ ,  $-CH=CH-COOR^6$ ,  $-CF_3$ ,  $-CN_1$ ,  $-NO_2$  and halogen;

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1.5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0.2}R^9$ ,  $-O(CH_2)_{1-10}$ - $-COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(Iower alkylene)COOR^6$  and  $-CH=CH-COOR^6$ ;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

### (b) Formula (III):

<u>(III)</u>

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (III) above:

Ar<sup>1</sup> is R<sup>3</sup>-substituted aryl;

Ar<sup>2</sup> is R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is R<sup>5</sup>-substituted arvl:

Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

A is selected from -O-, -S-, -S(O)- or -S(O)<sub>2</sub>-;

R<sup>1</sup> is selected from the group consisting of -OR<sup>6</sup>, -O(CO)R<sup>6</sup>, -O(CO)OR<sup>9</sup> and -O(CO)NR<sup>6</sup>R<sup>7</sup>; R<sup>2</sup> is selected from the group consisting of hydrogen, lower alkyl and arvl: or  $R^1$  and  $R^2$  together are =0:

q is 1, 2 or 3;

p is 0, 1, 2, 3 or 4;

R<sup>5</sup> is 1-3 substituents independently selected from the group consisting of  $-OR^{6}$ ,  $-O(CO)R^{6}$ ,  $-O(CO)OR^{9}$ ,  $-O(CH_{2})_{1.5}OR^{9}$ ,  $-O(CO)NR^{6}R^{7}$ ,  $-NR^{6}R^{7}$ ,  $-NR^{6}(CO)R^{7}$ , -NR<sup>6</sup>(CO)OR<sup>9</sup>, -NR<sup>6</sup>(CO)NR<sup>7</sup>R<sup>8</sup>, -NR<sup>6</sup>SO<sub>2</sub>-lower alkyl, -NR<sup>6</sup>SO<sub>2</sub>-aryl, -CONR<sup>6</sup>R<sup>7</sup>, - $COR^{6}$ ,  $-SO_{2}NR^{6}R^{7}$ ,  $S(O)_{0.2}$ -alkyl,  $S(O)_{0.2}$ -aryl,  $-O(CH_{2})_{1.10}$ - $COOR^{6}$ ,  $-O(CH_{2})_{1.10}$ 10 CONR R, o-halogeno, m-halogeno, o-lower alkyl, m-lower alkyl, -(lower alkylene)-COOR<sup>6</sup>, and

-CH=CH-COOR<sup>6</sup>;

R<sup>3</sup> and R<sup>4</sup> are independently 1-3 substituents independently selected from the group consisting of R<sup>5</sup>, hydrogen, p-lower alkyl, aryl, -NO<sub>2</sub>, -CF<sub>3</sub> and p-halogeno; {W0176270.1}

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

### (c) Formula (IV):

$$Ar^{1}-R^{1}-Q$$

$$Q$$

$$N$$

$$Ar^{2}$$

(IV)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (IV) above:

A is selected from the group consisting of R<sup>2</sup>-substituted heterocycloalkyl, R<sup>2</sup>-substituted heterocycloalkyl, R<sup>2</sup>-substituted benzofused heterocycloalkyl, and R<sup>2</sup>-substituted benzofused heter

Ar<sup>1</sup> is aryl or R<sup>3</sup>-substituted aryl;

Ar<sup>2</sup> is aryl or R<sup>4</sup>-substituted aryl;

Q is a bond or, with the 3-position ring carbon of the azetidinone, forms the

$$R^{5}$$
  $(R^{6})_{a}$  spiro group  $(R^{7})_{b}$  ; and

R<sup>1</sup> is selected from the group consisting of:

-(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 2-6, provided that when Q forms a spiro ring, q can also be zero or 1;

 $-(CH_2)_e$ -G- $(CH_2)_r$ -, wherein G is -O-, -C(O)-, phenylene, -NR<sup>8</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;

-(C<sub>2</sub>-C<sub>6</sub> alkenylene)-; and

-(CH<sub>2</sub>)<sub>f</sub>V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1-5 and g is 0-

5, provided that the sum of f and g is 1-6;

R<sup>5</sup> is selected from:

-CH-, -C(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sup>9</sup>)-, -N-, or 
$$-^{+}$$
NO<sup>-</sup>;

 $\frac{R^6 \text{ and R}^7 \text{ are independently selected from the group consisting of}}{-CH_2^-, -CH(C_1^-C_6^- \text{ alkyl})_-, -C(\text{di-}(C_1^-C_6^-) \text{ alkyl})_+, -CH=CH- \text{ and}}\\ -C(C_1^-C_6^- \text{ alkyl})=CH-; \text{ or R}^5 \text{ together with an adjacent R}^6, \text{ or R}^5 \text{ together with an adjacent R}^7, \text{ form a -CH=CH- or a -CH=C(C_1^-C_6^- \text{ alkyl})_- group;}}$ 

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when  $R^6$  is -CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, a is 1; provided that when  $R^7$  is -CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^6$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^7$ 's can be the same or different;

and when Q is a bond, R<sup>1</sup> also can be selected from:

where M is -O-, -S-, -S(O)- or -S(O)<sub>2</sub>-;

X, Y and Z are independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1$ - $C_6$  alkyl)- and  $-C(di-(C_1$ - $C_6)$  alkyl);

R<sup>10</sup> and R<sup>12</sup> are independently selected from the group consisting of -OR<sup>14</sup>, -O(CO)R<sup>14</sup>, -O(CO)OR<sup>16</sup> and -O(CO)NR<sup>14</sup>R<sup>15</sup>;

 $R^{11}$  and  $R^{13}$  are independently selected from the group consisting of hydrogen, ( $C_1$ - $C_6$ )alkyl and aryl; or  $R^{10}$  and  $R^{11}$  together are =0, or  $R^{12}$  and  $R^{13}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4; provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

{W0176270.1}

### v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

 $\frac{R^2 \text{ is } 1\text{-3 substituents on the ring carbon atoms selected from the group consisting of hydrogen, } {(C_1\text{-}C_{10})\text{alkyl, } {(C_2\text{-}C_{10})\text{alkenyl, } {(C_2\text{-}C_{10})\text{alkynyl, }} } } {(C_3\text{-}C_6)\text{cycloalkyl, } {(C_3\text{-}C_6)\text{cycloalkenyl, } R^{17}\text{-substituted aryl, } R^{17}\text{-substituted benzyl, } } {R^{17}\text{-substituted benzyloxy, } R^{17}\text{-substituted aryloxy, halogeno, -NR}^{14}R^{15}, } {R^{18}\text{-}(C_1\text{-}C_6)\text{alkylene})\text{-, NR}^{14}R^{15}\text{-}(C)(C_1\text{-}C_6)\text{alkylene})\text{-, -NHC}(O)R}^{16}, } {R^{18}\text{-}(C_1\text{-}C_6)\text{alkylene})\text{-, -NHC}(O)R}^{16}, } {R^{18}\text{-}(C_1\text{-}C_6)\text{alkyl, } {(C_1\text{-}C_6)\text{alkoxy}} {(C_1\text{-}C_6)\text{alkyl, } {(C_1\text{-}C_6)\text{alkoxy}} {(C_1\text{-}C_6)\text{alkyl, } {(C_1\text{-}C_6)\text{alkylene}} {(C_1\text$ 

substituent on a heterocycloalkyl ring,  $R^2$  is as defined, or is =0 or is and, where  $R^2$  is a substituent on a substitutable ring nitrogen, it is hydrogen,  $(C_1-C_6)$  alkyl, aryl,  $(C_1-C_6)$  alkoxy, aryloxy,  $(C_1-C_6)$  alkylcarbonyl, arylcarbonyl, hydroxy,  $(C_1-C_6)$  alkylcarbonyl, hydroxy, hy

wherein J is -O-, -NH-, -NR<sup>18</sup>- or -CH<sub>2</sub>-;

 $\frac{R^3 \text{ and } R^4 \text{ are independently selected from the group consisting of 1-3} {\text{substituents independently selected from the group consisting of } (C_1-C_6) \text{alkyl,} } \\ \frac{-OR^{14}, -O(CO)R^{14}, -O(CO)OR^{16}, -O(CH_2)_{1.5}OR^{14}, -O(CO)NR^{14}R^{15}, -NR^{14}R^{15}, }{-NR^{14}(CO)R^{15}, -NR^{14}(CO)OR^{16}, -NR^{14}(CO)NR^{15}R^{19}, -NR^{14}SO_2R^{16}, -COOR^{14}, } \\ \frac{-CONR^{14}R^{15}, -COR^{14}, -SO_2NR^{14}R^{15}, S(O)_{0.2}R^{16}, -O(CH_2)_{1.10}-COOR^{14}, }{-O(CH_2)_{1.10}CONR^{14}R^{15}, -(C_1-C_6) \text{ alkylene} -COOR^{14}, -CH=CH-COOR^{14}, -CF_3, -CN, -NO_2 \text{ and halogen;}}$ 

R<sup>8</sup> is hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>14</sup> or -COOR<sup>14</sup>;

 $R^9$  and  $R^{17}$  are independently 1-3 groups independently selected from the group consisting of hydrogen,  $(C_1-C_6)$ alkyl,  $(C_1-C_6)$ alkoxy, -COOH,  $NO_2$ , -NR $^{14}$ R $^{15}$ , OH and halogeno;

 $R^{14}$  and  $R^{15}$  are independently selected from the group consisting of hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>16</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>17</sup>-substituted aryl;

R<sup>18</sup> is hydrogen or (C<sub>1</sub>-C<sub>6</sub>)alkyl; and

R<sup>19</sup> is hydrogen, hydroxy or (C<sub>1</sub>-C<sub>6</sub>)alkoxy;

### (d) Formula (V):

$$Ar^{1} \times_{m} \stackrel{R}{\underset{R^{1}}{|}} Y_{n} \stackrel{S(O)_{r}}{\longrightarrow} Ar^{2}$$

$$N \times_{N} Ar^{3} \qquad (V)$$

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (V) above:

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl or heteroaryl;

Ar<sup>2</sup> is aryl or R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X and Y are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R is  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$  or  $-O(CO)NR^6R^7$ ; R<sup>1</sup> is hydrogen, lower alkyl or aryl; or R and R<sup>1</sup> together are =O;

q is 0 or 1;

r is 0, 1 or 2;

m and n are independently 0, 1, 2, 3, 4 or 5; provided that the sum of m, n and q is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,

- 33 -

 $-NR^{6}R^{7}, -NR^{6}(CO)R^{7}, -NR^{6}(CO)OR^{9}, -NR^{6}(CO)NR^{7}R^{8}, -NR^{6}SO_{2}R^{9}, -COOR^{6}, \\ -CONR^{6}R^{7}, -COR^{6}, -SO_{2}NR^{6}R^{7}, S(O)_{0.2}R^{9}, -O(CH_{2})_{1.10}-COOR^{6}, \\ -O(CH_{2})_{1.10}CONR^{6}R^{7}, -(lower alkylene)COOR^{6} and -CH=CH-COOR^{6};$ 

 $\frac{R^5 \text{ is } 1\text{-}5 \text{ substituents independently selected from the group consisting of }}{-OR^6, -O(CO)R^6, -O(CO)OR^9, -O(CH_2)_{1\text{-}5}OR^6, -O(CO)NR^6R^7, -NR^6R^7, -NR^6(CO)R^7, -NR^6(CO)NR^7R^8, -NR^6SO_2R^9, -COOR^6, -CONR^6R^7, -COR^6, -CONR^6R^7, -COR^6, -CONR^6R^7, -COR^6, -CONR^6R^7, -COR^6, -CONR^6R^7, -COR^6, -CONR^6R^7, -CONR^6R^7, -CONR^6, -CONR^6R^7, -CONR^6, -CONR^6,$ 

-(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl;

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl; and

 $\frac{R^{10} \text{ is 1-5 substituents independently selected from the group consisting of lower alkyl, } {-OR^6, -O(CO)R^6, -O(CO)OR^9, -O(CH_2)_{1-5}OR^6, -O(CO)NR^6R^7, } \\ -NR^6R^7, -NR^6(CO)R^7, -NR^6(CO)OR^9, -NR^6(CO)NR^7R^8, -NR^6SO_2R^9, -COOR^6, \\ -CONR^6R^7, -COR^6, -SO_2NR^6R^7, -S(O)_{0.2}R^9, -O(CH_2)_{1-10}\text{-COOR}^6, \\ -O(CH_2)_{1-10}CONR^6R^7, -CF_3, -CN, -NO_2 \text{ and halogen;}$ 

### (e) Formula (VI):

$$R_4$$
 $R_1$ 
 $R_2$ 
 $R_3$ 
 $R_2$ 
 $R_3$ 
 $R_2$ 
 $R_3$ 
 $R_4$ 
 $R_2$ 
 $R_2$ 
 $R_3$ 
 $R_4$ 
 $R_2$ 
 $R_3$ 
 $R_4$ 
 $R_4$ 
 $R_2$ 
 $R_3$ 
 $R_4$ 
 $R_4$ 
 $R_5$ 
 $R_7$ 
 $R_7$ 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

<u>R1\_is</u>

-CH-, -C(lower alkyl)-, -CF-, -C(OH)-, -C( $C_6H_5$ )-, -C( $C_6H_4$ -R<sub>15</sub>)-,

- 34 -

# -N- or -N- o ;

R2 and R3 are independently selected from the group consisting of:

-CH2-, -CH(lower alkyl)-, -C(di-lower alkyl)-, -CH=CH- and -C(lower alkyl)=CH-; or

R1 together with an adjacent R2, or R1 together with an adjacent R3, form a

-CH=CH- or a -CH=C(lower alkyl)- group;

u and v are independently 0, 1, 2 or 3, provided both are not zero; provided that when R2 is -CH=CH- or -C(lower alkyl)=CH-, v is 1; provided that when R3 is -CH=CH- or -C(lower alkyl)=CH-, u is 1; provided that when v is 2 or 3, the R2's can be the same or different; and provided that when u is 2 or 3, the R3's can be the same or different;

<u>R4 is selected from B-(CH2)mC(O)-, wherein m is 0, 1, 2, 3, 4 or 5;</u> <u>B-(CH2)q-, wherein q is 0, 1, 2, 3, 4, 5 or 6;</u>

B-(CH<sub>2</sub>)<sub>e</sub>-Z-(CH<sub>2</sub>)<sub>r</sub>-, wherein Z is -O-, -C(O)-, phenylene, -N(R<sub>8</sub>)- or -S(O)<sub>0-2</sub>-, e is 0, 1, 2, 3, 4 or 5 and r is 0, 1, 2, 3, 4 or 5, provided that the sum of e and r is 0, 1, 2, 3, 4, 5 or 6;

B-(C2-C6 alkenylene)-;

B-(C4-C6 alkadienylene)-;

B-(CH<sub>2</sub>)<sub>t</sub>-Z-(C<sub>2</sub>-C<sub>6</sub> alkenylene)-, wherein Z is as defined above, and wherein t is 0, 1, 2 or 3, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1, 2, 3, 4 or 5 and g is 0, 1, 2, 3, 4 or 5, provided that the sum of f and g is 1, 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)t-V-(C<sub>2</sub>-C<sub>6</sub> alkenylene)- or

B-(C2-C6 alkenylene)-V-(CH2)t-, wherein V and t are as defined above, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>a</sub>-Z-(CH<sub>2</sub>)<sub>b</sub>-V-(CH<sub>2</sub>)<sub>d</sub>-, wherein Z and V are as defined above and a, b and d are independently 0, 1, 2, 3, 4, 5 or 6, provided that the sum of a, b and d is 0, 1, 2,

3, 4, 5 or 6; or T-(CH<sub>2</sub>)<sub>s</sub>-, wherein T is cycloalkyl of 3-6 carbon atoms and s is 0, 1, 2, 3, 4, 5 or 6; or

R1 and R4 together form the group B-CH=C-;

B is selected from indanyl, indenyl, naphthyl, tetrahydronaphthyl, heteroaryl or W-substituted heteroaryl, wherein heteroaryl is selected from the group consisting of pyrrolyl, pyridinyl, pyrimidinyl, pyrazinyl, triazinyl, imidazolyl, thiazolyl, pyrazolyl, thienyl, oxazolyl and furanyl, and for nitrogen-containing heteroaryls, the N-oxides thereof, or

W is 1 to 3 substituents independently selected from the group consisting of lower alkyl, hydroxy lower alkyl, lower alkoxy, alkoxyalkyl, alkoxyalkoxy, lower alkyl, lower alkyl, lower alkyl lower alkyloxy, -CF3, -OCF3, benzyl, R7-benzyl, benzyloxy, enzyloxy, R7-benzyloxy, phenoxy, R7-phenoxy, dioxolanyl, NO2,-N(R8)(R9), N(R8)(R9)-lower alkylene-, N(R8)(R9)-lower alkylenyloxy-, OH, halogeno, -CN, -N3, -NHC(O)OR10, -NHC(O)R10, R11O2SNH-, (R11O2S)2N-, -S(O)2NH2, -S(O)0-2R8, tert-butyldimethyl-silyloxymethyl, -C(O)R12, -COOR19, -CON(R8)(R9), -CON(R8)(R8), -CON

N(Rg)(Rg)C(O)(lower alkylenyloxy)- and for substitution on ring carbon atoms, and the substituents on the substituted heteroaryl ring nitrogen atoms, when present, are selected from the group consisting of lower alkyl, lower alkoxy, -C(O)OR10, -C(O)R10, OH, N(Rg)(Rg)-lower alkylene-,N(Rg)(Rg)-lower alkylenyloxy-, -

R<sub>7</sub> is 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, -COOH, NO<sub>2</sub>, -N(R<sub>8</sub>)(R<sub>9</sub>), OH, and halogeno;

S(O)<sub>2</sub>NH<sub>2</sub> and 2-(trimethylsilyl)-ethoxymethyl;

- 36 -

R8 and R9 are independently selected from H or lower alkyl;

R10 is selected from lower alkyl, phenyl, R7-phenyl, benzyl or R7-benzyl;

R11 is selected from OH, lower alkyl, phenyl, benzyl, R7-phenyl or R7-benzyl;

R<sub>12</sub> is selected from H, OH, alkoxy, phenoxy, benzyloxy,

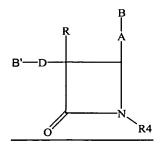
R<sub>13</sub> is selected from -O-, -CH<sub>2</sub>-, -NH-, -N(lower alkyl)- or -NC(O)R<sub>19</sub>;

R15, R16 and R17 are independently selected from the group consisting of H and the groups defined for W; or R15 is hydrogen and R16 and R17, together with adjacent carbon atoms to which they are attached, form a dioxolaryl ring;

R<sub>19</sub> is H, lower alkyl, phenyl or phenyl lower alkyl; and

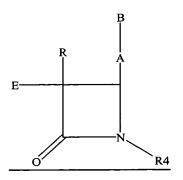
R20 and R21 are independently selected from the group consisting of phenyl, W-substituted phenyl, naphthyl, W-substituted naphthyl, indanyl, indenyl, tetrahydronaphthyl, benzodioxolyl, heteroaryl, W-substituted heteroaryl, benzofused heteroaryl, W-substituted benzofused heteroaryl and cyclopropyl, wherein heteroaryl is as defined above;

### (f) Formula (VIIA) or (VIIB):



(VIIA)

<u>or</u>



(VIIB)

or a pharmaceutically acceptable salt or solvate thereof, wherein:

A is -CH=CH-, -C≡C- or -(CH<sub>2</sub>)<sub>p</sub>- wherein p is 0, 1 or 2;

<u>B is</u>

$$R_1$$
 $R_2$ 
 $R_3$ 

B' is

D is -(CH<sub>2</sub>)<sub>m</sub>C(O)- or -(CH<sub>2</sub>)<sub>q</sub>- wherein m is 1, 2, 3 or 4 and q is 2, 3 or 4;

E is C<sub>10</sub> to C<sub>20</sub> alkyl or -C(O)-(C<sub>9</sub> to C<sub>19</sub>)-alkyl, wherein the alkyl is straight or branched, saturated or containing one or more double bonds;

R is hydrogen, C<sub>1</sub>-C<sub>15</sub> alkyl, straight or branched, saturated or containing one or more double bonds, or B-(CH<sub>2</sub>)<sub>r</sub>-, wherein r is 0, 1, 2, or 3;

R1, R2, R3, R1', R2', and R3' are independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, carboxy, NO2, NH2, OH, halogeno, lower alkylamino, dilower alkylamino, -NHC(O)OR5, R6O2SNH- and -S(O)2NH2;

<u>R4\_is</u>

{W0176270.1}

## wherein n is 0, 1, 2 or 3;

R5 is lower alkyl; and

R6 is OH, lower alkyl, phenyl, benzyl or substituted phenyl wherein the substituents are 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, carboxy, NO2, NH2, OH, halogeno, lower alkylamino and dilower alkylamino;

### (g) Formula (VIII):

$$Ar^{1}-R^{1}-Q$$
 $R^{26}$ 
 $N$ 
 $Ar^{2}$ 

(VIII)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (VIII) above,

 $R^{26}$  is H or  $OG^1$ :

G and G<sup>1</sup> are independently selected from the group consisting of

and 
$$R^{4a}Q$$
  $CH_2R^b$ ; provided that when  $R^{26}$  is H or  $CH_2R^a$ 

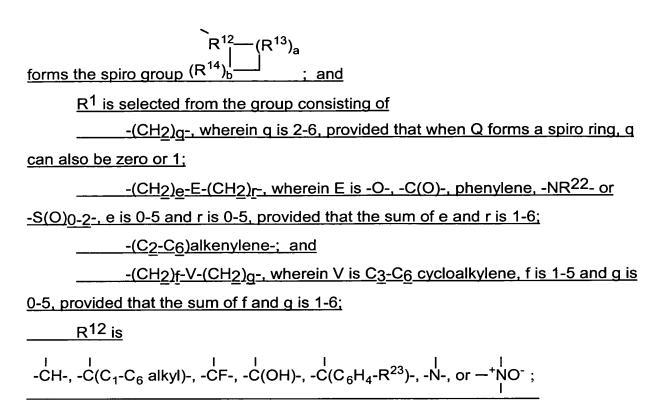
OH, G is not H;

R, R<sup>a</sup> and R<sup>b</sup> are independently selected from the group consisting of H, -OH, halogeno, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)-alkoxy or -W-R<sup>30</sup>;

- 39 -

{W0176270.1}

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-
, -O-C(O)-N(R <sup>31</sup> )-, -NH-C(O)-N(R <sup>31</sup> )- and -O-C(S)-N(R <sup>31</sup> )-;
R <sup>2</sup> and R <sup>6</sup> are independently selected from the group consisting of H,
(C1-C6)alkyl, aryl and aryl(C1-C6)alkyl;
R <sup>3</sup> , R <sup>4</sup> , R <sup>5</sup> , R <sup>7</sup> , R <sup>3a</sup> and R <sup>4a</sup> are independently selected from the group
consisting of H, (C1-C6)alkyl, aryl(C1-C6)alkyl, -C(O)(C1-C6)alkyl and
-C(O)aryl;
R <sup>30</sup> is selected from the group consisting of R <sup>32</sup> -substituted T,
R32-substituted-T-(C1-C6)alkyl, R32-substituted-(C2-C4)alkenyl,
R <sup>32</sup> -substituted-(C <sub>1</sub> -C <sub>6</sub> )alkyl, R <sup>32</sup> -substituted-(C <sub>3</sub> -C <sub>7</sub> )cycloalkyl and
R <sup>32</sup> -substituted-(C <sub>3</sub> -C <sub>7</sub> )cycloalkyl(C <sub>1</sub> -C <sub>6</sub> )alkyl;
R <sup>31</sup> is selected from the group consisting of H and (C <sub>1</sub> -C <sub>4</sub> )alkyl;
T is selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl,
oxazolyl, isoxazolyl, thiazolyl, iosthiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl,
imidazolyl and pyridyl;
R <sup>32</sup> is independently selected from 1-3 substituents independently selected
from the group consisting of halogeno, (C1-C4)alkyl, -OH, phenoxy,
-CF3, -NO2, (C1-C4)alkoxy, methylenedioxy, oxo, (C1-C4)alkylsulfanyl,
(C1-C4)alkylsulfinyl, (C1-C4)alkylsulfonyl, -N(CH3)2, -C(O)-NH(C1-C4)alkyl,
-C(O)-N((C1-C4)alkyl)2, -C(O)-(C1-C4)alkyl, -C(O)-(C1-C4)alkoxy and
pyrrolidinylcarbonyl; or R <sup>32</sup> is a covalent bond and R <sup>31</sup> , the nitrogen to which it is
attached and R <sup>32</sup> form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or
morpholinyl group, or a (C1-C4)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl,
N-methylpiperazinyl, indolinyl or morpholinyl group;
Ar <sup>1</sup> is aryl or R <sup>10</sup> -substituted aryl;
Ar <sup>2</sup> is aryl or R <sup>11</sup> -substituted aryl;
Q is a bond or, with the 3-position ring carbon of the azetidinone,



R<sup>13</sup> and R<sup>14</sup> are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sup>13</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when R<sup>14</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the R<sup>14</sup>'s can be the same or different; and when Q is a bond, R<sup>1</sup> also can be:

adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, {W0176270.1} - 41 -

-CH(C1-C6)alkyl- and -C(di-(C1-C6)alkyl);

R<sup>10</sup> and R<sup>11</sup> are independently selected from the group consisting of 1-3 substituents independently selected from the group consisting of

(C1-C6)alkyl, -OR19, -O(CO)R19, -O(CO)OR21, -O(CH2)1-5OR19,

-O(CO)NR<sup>19</sup>R<sup>20</sup>, -NR<sup>19</sup>R<sup>20</sup>, -NR<sup>19</sup>(CO)R<sup>20</sup>, -NR<sup>19</sup>(CO)OR<sup>21</sup>,

-NR<sup>19</sup>(CO)NR<sup>20</sup>R<sup>25</sup>, -NR<sup>19</sup>SO<sub>2</sub>R<sup>21</sup>, -COOR<sup>19</sup>, -CONR<sup>19</sup>R<sup>20</sup>, -COR<sup>19</sup>,

-SO<sub>2</sub>NR<sup>19</sup>R<sup>20</sup>, S(O)<sub>0</sub>-2R<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1</sub>-10-COOR<sup>19</sup>, -O(CH<sub>2</sub>)<sub>1</sub>-10CONR<sup>19</sup>R<sup>20</sup>,

-(C1-C6 alkylene)-COOR<sup>19</sup>, -CH=CH-COOR<sup>19</sup>, -CF3, -CN, -NO2 and halogen;

R15 and R17 are independently selected from the group consisting of -OR19, -O(CO)R19, -O(CO)OR21 and -O(CO)NR19R20;

 $R^{16}$  and  $R^{18}$  are independently selected from the group consisting of H,  $(C_1-C_6)$  alkyl and aryl; or  $R^{15}$  and  $R^{16}$  together are =0, or  $R^{17}$  and  $R^{18}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

 $R_{i}^{15}$   $-X_{j}^{-}(C)_{v}^{-}Y_{k}^{-}S(O)_{0-2}^{-}$   $R_{i}^{16}$ , Ar<sup>1</sup> can also be

and when Q is a bond and R<sup>1</sup> is R<sup>16</sup>, Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl-substituted (C1-C6)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>;

R<sup>23</sup> and R<sup>24</sup> are independently 1-3 groups independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, -COOH, NO<sub>2</sub>,

-NR<sup>19</sup>R<sup>20</sup>, -OH and halogeno; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy; and

## (h) Formula (IX):

or a pharmaceutically acceptable salt or solvate thereof, wherein in Formula (IX):

R<sup>1</sup> is selected from the group consisting of H, G, G<sup>1</sup>, G<sup>2</sup>, -SO<sub>3</sub>H and -PO<sub>3</sub>H;

G is selected from the group consisting of: H,

$$R^{5}O$$
  $OR^{4}$   $R^{5}O$   $OR^{4}$   $OR^{3}$   $OR^{3}$   $OR^{4}$   $OR^{5}$   $OR^{3}$   $OR^{4}$   $OR^{5}$   $OR^{3}$   $OR^{4}$   $OR^{3}$   $OR^{4}$   $OR^{3}$   $OR^{4}$   $OR^{5}$   $OR^{4}$   $OR^{5}$   $OR^{5}$   $OR^{4}$   $OR^{5}$   $OR^{4}$   $OR^{5}$   $OR^{4}$   $OR^{5}$   $OR^{4}$   $OR^{5}$   $OR^{5}$   $OR^{4}$   $OR^{5}$   $O$ 

wherein R, R<sup>a</sup> and R<sup>b</sup> are each independently selected from the group consisting of H, -OH, halo, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R<sup>31</sup>)-, -NH-C(O)-N(R<sup>31</sup>)- and -O-C(S)-N(R<sup>31</sup>)-;

R<sup>2</sup> and R<sup>6</sup> are each independently selected from the group consisting of H, (C1-C6)alkyl, acetyl, aryl and aryl(C1-C6)alkyl;

R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>3a</sup> and R<sup>4a</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, acetyl, aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl and -C(O)aryl;

 $\frac{R^{30} \text{ is independently selected from the group consisting of}}{R^{32}\text{-substituted T, }R^{32}\text{-substituted-T-(}C_{\underline{1}\text{-}C_{\underline{6}}\text{)}alkyl, }R^{32}\text{-substituted-(}C_{\underline{2}\text{-}C_{\underline{4}}\text{)}alkenyl,}}{R^{32}\text{-substituted-(}C_{\underline{1}\text{-}C_{\underline{6}}\text{)}alkyl, }R^{32}\text{-substituted-(}C_{\underline{3}\text{-}C_{\underline{7}}\text{)}cycloalkyl }and }R^{32}\text{-}\\ \underline{\text{substituted-(}C_{\underline{3}\text{-}C_{\underline{7}}\text{)}cycloalkyl(}C_{\underline{1}\text{-}C_{\underline{6}}\text{)}alkyl;}}$ 

R<sup>31</sup> is independently selected from the group consisting of H and (C<sub>1</sub>-C<sub>4</sub>)alkyl;

T is independently selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl, imidazolyl and pyridyl;

R<sup>32</sup> is independently selected from 1-3 substituents which are each independently selected from the group consisting of H, halo, (C<sub>1</sub>-C<sub>4</sub>)alkyl, -OH, phenoxy, -CF<sub>3</sub>, -NO<sub>2</sub>, (C<sub>1</sub>-C<sub>4</sub>)alkoxy, methylenedioxy, oxo, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfanyl, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfinyl, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfonyl, -N(CH<sub>3</sub>)<sub>2</sub>, -C(O)-NH(C<sub>1</sub>-C<sub>4</sub>)alkyl, -C(O)-N((C<sub>1</sub>-C<sub>4</sub>)alkyl)<sub>2</sub>, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkyl, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkoxy and pyrrolidinylcarbonyl; or R<sup>32</sup> is a covalent bond and R<sup>31</sup>, the nitrogen to which it is attached and R<sup>32</sup> form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or morpholinyl group, or a (C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl, N-methylpiperazinyl, indolinyl or morpholinyl group;

G<sup>1</sup> is represented by the structure:

wherein R<sup>33</sup> is independently selected from the group consisting of unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, (R<sup>35</sup>)(R<sup>36</sup>)alkyl-,

R<sup>34</sup> is one to three substituents, each R<sup>34</sup> being independently selected from the group consisting of HOOC-, HO-, HS-, (CH<sub>3</sub>)S-, H<sub>2</sub>N-, (NH<sub>2</sub>)(NH)C(NH)-, (NH<sub>2</sub>)C(O)- and HOOCCH(NH<sub>3</sub><sup>+</sup>)CH<sub>2</sub>SS-;

R<sup>35</sup> is independently selected from the group consisting of H and NH<sub>2</sub>-;

R<sup>36</sup> is independently selected from the group consisting of H, unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, unsubstituted cycloalkyl and R<sup>34</sup>-substituted cycloalkyl;

G<sup>2</sup> is represented by the structure:

wherein R<sup>37</sup> and R<sup>38</sup> are each independently selected from the group consisting of (C<sub>1</sub>-C<sub>6</sub>)alkyl and aryl;

R<sup>26</sup> is one to five substituents, each R<sup>26</sup> being independently selected from the group consisting of:

- a) H;
- b) -OH;
- c) -OCH<sub>3</sub>;
- d) fluorine;
- e) chlorine;
- <u>f)</u> -O-G;
- g) -O-G<sup>1</sup>:
- h) -O-G<sup>2</sup>;
- i) -SO₃H; and
- j) –PO₃H;

provided that when R<sup>1</sup> is H, R<sup>26</sup> is not H, -OH, -OCH<sub>3</sub> or -O-G;

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl, heteroaryl or R<sup>10</sup>-substituted heteroaryl;

## Ar<sup>2</sup> is aryl, R<sup>11</sup>-substituted aryl, heteroaryl or R<sup>11</sup>-substituted heteroaryl;

L is selected from the group consisting of:

- a) a covalent bond;
- b)  $-(CH_2)_{a}$ , wherein q is 1-6;
- c) -(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>-, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;
- d)  $-(C_2-C_6)$ alkenylene-;
- e) -(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub>cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6; and

\_\_\_f)\_\_\_

$$- M - Y_d - C - Z_h - X_m - (C)_s - Y_n - (C)_s - Z_p - Or - R^{15} - (C)_{10} - Y_k - S(O)_{0-2} - (C)_{10} - (C)_{10$$

wherein M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are each independently selected from the group consisting of —CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub>)alkyl- and —C(di-(C<sub>1</sub>-C<sub>6</sub>)alkyl)-;

R<sup>8</sup> is selected from the group consisting of H and alkyl;

R<sup>10</sup> and R<sup>11</sup> are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of  $(C_1-C_6)$ alkyl,  $-OR^{19}$ ,  $-O(CO)R^{19}$ ,  $-O(CO)OR^{21}$ ,  $-O(CH_2)_{1-5}OR^{19}$ ,  $-O(CO)NR^{19}R^{20}$ ,  $-NR^{19}R^{20}$ ,  $-NR^{19}R^{20}$ ,  $-NR^{19}R^{20}$ ,  $-NR^{19}R^{20}$ ,  $-NR^{19}R^{20}$ ,  $-COR^{19}$ ,  $-COR^{19}$ ,  $-COR^{19}$ ,  $-COR^{19}$ ,  $-COR^{19}$ ,  $-O(CH_2)_{1-10}CONR^{19}R^{20}$ ,  $-O(CH_2)_{1-10}CONR$ 

R<sup>15</sup> and R<sup>17</sup> are each independently selected from the group consisting of worresponding to the selected from the group consisting of -47 -

## $-OR^{19}$ , $-OC(O)R^{19}$ , $-OC(O)OR^{21}$ , $-OC(O)NR^{19}R^{20}$ ;

R<sup>16</sup> and R<sup>18</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl and aryl;

or R<sup>15</sup> and R<sup>16</sup> together are =O, or R<sup>17</sup>and R<sup>18</sup> together are =O;

<u>d is 1, 2 or 3;</u>

h is 0, 1, 2, 3 or 4;

s is 0 or 1;

t is 0 or 1;

m, n and p are each independently selected from 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, n and p is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are each independently 1-5, provided that the sum of j, k and v is 1-5;

Q is a bond, -(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 1-6, or, with the 3-position ring carbon of the azetidinone, forms the spiro group

$$R^{12}$$
  $(R^{13})_a$   $(R^{14})_b$ 

wherein R<sup>12</sup> is

-CH-, -C(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sup>23</sup>)-, -N-, or 
$$-^{+}$$
NO<sup>-</sup>;

R<sup>13</sup> and R<sup>14</sup> are each independently selected from the group consisting of

-CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are each independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sup>13</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when R<sup>14</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the R<sup>14</sup>'s can be the same or different;

#### and when Q is a bond and L is

then Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>;

R<sup>23</sup> and R<sup>24</sup> are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of H, (C1-C6)alkyl, (C1-C6)alkoxy, -COOH, NO<sub>2</sub>, -NR<sup>19</sup>R<sup>20</sup>, -OH and halo; and

- 49 -

## R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy.

20. (Currently Amended) A therapeutic combination comprising: (a) a first amount of at least one sterol absorption inhibitor or a pharmaceutically acceptable salt or solvate thereof; and (b) a second amount of at least one antidemyelination agent, wherein the first amount and the second amount together comprise a therapeutically effective amount for the treatment or prevention of demyelination in a subject and wherein the at least one sterol absorption inhibitor is selected from the group consisting of sterol absorption inhibitors represented by the following Formulae:

#### (a) Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 $Ar^{3}$ 
 $R^{1}$ 
 $R^{3}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

 $Ar^{1}$  and  $Ar^{2}$  are independently selected from the group consisting of aryl and  $R^{4}$ -substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X, Y and Z are independently selected from the group consisting of -CH2-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and  $R^2$  are independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$  and  $-O(CO)NR^6R^7$ ;

R<sup>1</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1;

r is 0 or 1;

{W0176270.1}

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5 or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-O(CH_2)_{1-10}$ - $-O(CH_2)_{1-10}$ - $-OOR^6$ ,  $-OOR^6$ ,

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1.5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0.2}R^9$ ,  $-O(CH_2)_{1-10}$ - $-COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(Iower alkylene)COOR^6$  and  $-CH=CH-COOR^6$ ;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

### (b) Formula (III):

(III)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (III) above:

Ar<sup>1</sup> is R<sup>3</sup>-substituted aryl;

Ar<sup>2</sup> is R<sup>4</sup>-substituted aryl;

{W0176270.1} - 51 -

# Ar<sup>3</sup> is R<sup>5</sup>-substituted aryl;

Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

A is selected from -O-, -S-, -S(O)- or -S(O) $_2$ -;

 $R^{1}$  is selected from the group consisting of  $-OR^{6}$ ,  $-O(CO)R^{6}$ ,  $-O(CO)OR^{9}$  and  $-O(CO)NR^{6}R^{7}$ ;  $R^{2}$  is selected from the group consisting of hydrogen, lower alkyl and aryl; or  $R^{1}$  and  $R^{2}$  together are =O;

q is 1, 2 or 3;

p is 0, 1, 2, 3 or 4;

R<sup>5</sup> is 1-3 substituents independently selected from the group consisting of -OR<sup>6</sup>, -O(CO)R<sup>6</sup>, -O(CO)OR<sup>9</sup>, -O(CH<sub>2</sub>)<sub>1-5</sub>OR<sup>9</sup>, -O(CO)NR<sup>6</sup>R<sup>7</sup>, -NR<sup>6</sup>R<sup>7</sup>, -NR<sup>6</sup>(CO)R<sup>7</sup>, -NR<sup>6</sup>(CO)OR<sup>9</sup>, -NR<sup>6</sup>(CO)NR<sup>7</sup>R<sup>8</sup>, -NR<sup>6</sup>SO<sub>2</sub>-lower alkyl, -NR<sup>6</sup>SO<sub>2</sub>-aryl, -CONR<sup>6</sup>R<sup>7</sup>, -CONR<sup>6</sup>R<sup>7</sup>, -COR<sup>6</sup>, -SO<sub>2</sub>NR<sup>6</sup>R<sup>7</sup>, S(O)<sub>0-2</sub>-alkyl, S(O)<sub>0-2</sub>-aryl, -O(CH<sub>2</sub>)<sub>1-10</sub>-COOR<sup>6</sup>, -O(CH<sub>2</sub>)<sub>1</sub>.

10 CONR<sup>6</sup>R<sup>7</sup>, o-halogeno, m-halogeno, o-lower alkyl, m-lower alkyl, -(lower alkylene)-COOR<sup>6</sup>, and -CH=CH-COOR<sup>6</sup>:

R<sup>3</sup> and R<sup>4</sup> are independently 1-3 substituents independently selected from the group consisting of R<sup>5</sup>, hydrogen, p-lower alkyl, aryl, -NO<sub>2</sub>, -CF<sub>3</sub> and p-halogeno;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

#### (c) Formula (IV):

$$Ar^{1}-R^{1}-Q$$

$$N$$

$$Ar^{2}$$

(IV)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in
Formula (IV) above:
A is selected from the group consisting of R <sup>2</sup> -substituted heterocycloalkyl, R <sup>2</sup> -
substituted heteroaryl, R <sup>2</sup> -substituted benzofused heterocycloalkyl, and R <sup>2</sup> -
substituted benzofused heteroaryl;
Ar <sup>1</sup> is aryl or R <sup>3</sup> -substituted aryl;
Ar <sup>2</sup> is aryl or R <sup>4</sup> -substituted aryl;
Q is a bond or, with the 3-position ring carbon of the azetidinone, forms the
$R_1^5$ — $(R^6)_a$
$R^{5}$ $(R^{6})_{a}$ spiro group $(R^{7})_{b}$ ; and
R <sup>1</sup> is selected from the group consisting of:
-(CH <sub>2</sub> ) <sub>g</sub> -, wherein q is 2-6, provided that when Q forms a spiro ring, q
can also be zero or 1;
-(CH <sub>2</sub> ) <sub>e</sub> -G-(CH <sub>2</sub> ) <sub>r</sub> -, wherein G is -O-, -C(O)-, phenylene, -NR <sup>8</sup> - or
-S(O) <sub>0-2</sub> -, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;
(C <sub>2</sub> -C <sub>6</sub> alkenylene)-; and
-(CH <sub>2</sub> ) <sub>f</sub> -V-(CH <sub>2</sub> ) <sub>g</sub> -, wherein V is C <sub>3</sub> -C <sub>6</sub> cycloalkylene, f is 1-5 and g is 0-
5, provided that the sum of f and g is 1-6;
R <sup>5</sup> is selected from:
-CH-, -C(C <sub>1</sub> -C <sub>6</sub> alkyl)-, -CF-, -C(OH)-, -C(C <sub>6</sub> H <sub>4</sub> -R <sup>9</sup> )-, -N-, or — NO <sup>-</sup> ;
R <sup>6</sup> and R <sup>7</sup> are independently selected from the group consisting of
-CH <sub>2</sub> -, -CH(C <sub>1</sub> -C <sub>6</sub> alkyl)-, -C(di-(C <sub>1</sub> -C <sub>6</sub> ) alkyl), -CH=CH- and
-C(C <sub>1</sub> -C <sub>6</sub> alkyl)=CH-; or R <sup>5</sup> together with an adjacent R <sup>6</sup> , or R <sup>5</sup> together with an
adjacent R <sup>7</sup> , form a -CH=CH- or a -CH=C(C <sub>1</sub> -C <sub>6</sub> alkyl)- group;
a and b are independently 0, 1, 2 or 3, provided both are not zero; provided
that when R <sup>6</sup> is -CH=CH- or -C(C <sub>4</sub> -C <sub>5</sub> alkyl)=CH-, a is 1: provided that when R <sup>7</sup> is

-CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>6</sup>'s can be the same or different; and provided that when b is 2 or 3, the R<sup>7</sup>'s can be the same or different;

and when Q is a bond, R<sup>1</sup> also can be selected from:

where M is -O-, -S-, -S(O)- or -S(O)<sub>2</sub>-;

X, Y and Z are independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6$  alkyl)- and  $-C(di-(C_1-C_6)$  alkyl);

R<sup>10</sup> and R<sup>12</sup> are independently selected from the group consisting of -OR<sup>14</sup>, -O(CO)R<sup>14</sup>, -O(CO)OR<sup>16</sup> and -O(CO)NR<sup>14</sup>R<sup>15</sup>;

 $R^{11}$  and  $R^{13}$  are independently selected from the group consisting of hydrogen, ( $C_1$ - $C_6$ )alkyl and aryl; or  $R^{10}$  and  $R^{11}$  together are =0, or  $R^{12}$  and  $R^{13}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4; provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

 $R^2$  is 1-3 substituents on the ring carbon atoms selected from the group consisting of hydrogen,  $(C_1-C_{10})$ alkyl,  $(C_2-C_{10})$ alkenyl,  $(C_2-C_{10})$ alkenyl,  $(C_2-C_{10})$ alkynyl,  $(C_3-C_6)$ cycloalkyl,  $(C_3-C_6)$ cycloalkenyl,  $(C_3-C_$ 

OH,  $C_1$ - $C_6$  alkoxy, -OC(O)R<sup>16</sup>, -COR<sup>14</sup>, hydroxy( $C_1$ - $C_6$ )alkyl, ( $C_1$ - $C_6$ )alkoxy( $C_1$ - $C_6$ )alkyl, NO<sub>2</sub>, -S(O)<sub>0-2</sub>R<sup>16</sup>, -SO<sub>2</sub>NR<sup>14</sup>R<sup>15</sup> and -( $C_1$ - $C_6$  alkylene)COOR<sup>14</sup>; when R<sup>2</sup> is a

substituent on a heterocycloalkyl ring,  $R^2$  is as defined, or is =0 or ; and, where  $R^2$  is a substituent on a substitutable ring nitrogen, it is hydrogen,  $(C_1-C_6)$ alkyl, aryl,  $(C_1-C_6)$ alkoxy, aryloxy,  $(C_1-C_6)$ alkylcarbonyl, arylcarbonyl, hydroxy,  $(C_1-C_6)$ alkylcarbonyl, hydroxy, hydr

wherein J is -O-, -NH-, -NR<sup>18</sup>- or -CH<sub>2</sub>-;

 $\frac{R^{3} \text{ and } R^{4} \text{ are independently selected from the group consisting of } {1-3} \\ \frac{SUBSTITUTE SUBSTITUTE SUB$ 

R<sup>8</sup> is hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>14</sup> or -COOR<sup>14</sup>;

 $R^9$  and  $R^{17}$  are independently 1-3 groups independently selected from the group consisting of hydrogen,  $(C_1-C_6)$ alkyl,  $(C_1-C_6)$ alkoxy, -COOH,  $NO_2$ , -NR $^{14}$ R $^{15}$ , OH and halogeno;

R<sup>14</sup> and R<sup>15</sup> are independently selected from the group consisting of hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>16</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>17</sup>-substituted aryl;

 $R^{18}$  is hydrogen or  $(C_1-C_6)$ alkyl; and

R<sup>19</sup> is hydrogen, hydroxy or (C<sub>1</sub>-C<sub>6</sub>)alkoxy;

- 55 -

{W0176270.1}

#### (d) Formula (V):

$$Ar^{1} \times_{m} (C)_{q} \times_{N} S(O)_{r} Ar^{2}$$

$$Ar^{3} \qquad (V)$$

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (V) above:

Ar is aryl, R -substituted aryl or heteroaryl;

Ar<sup>2</sup> is aryl or R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X and Y are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R is  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$  or  $-O(CO)NR^6R^7$ ; R<sup>1</sup> is hydrogen, lower alkyl or aryl; or R and R<sup>1</sup> together are =O;

g is 0 or 1;

r is 0, 1 or 2;

m and n are independently 0, 1, 2, 3, 4 or 5; provided that the sum of m, n and q is 1, 2, 3, 4 or 5;

 $\frac{R^4 \text{ is } 1\text{-}5 \text{ substituents independently selected from the group consisting of lower alkyl, } {-OR^6, -O(CO)R^6, -O(CO)OR^9, -O(CH_2)_{1\text{-}5}OR^6, -O(CO)NR^6R^7, } \\ -NR^6R^7, -NR^6(CO)R^7, -NR^6(CO)OR^9, -NR^6(CO)NR^7R^8, -NR^6SO_2R^9, -COOR^6, \\ -CONR^6R^7, -COR^6, -SO_2NR^6R^7, S(O)_{0\text{-}2}R^9, -O(CH_2)_{1\text{-}10}\text{-}COOR^6, } \\ -O(CH_2)_{1\text{-}10}CONR^6R^7, -(lower alkylene)COOR^6 \text{ and } -CH=CH-COOR^6; }$ 

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1.5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0.2}R^9$ ,  $-O(CH_2)_{1.10}$ - $-COOR^6$ 

{W0176270.1} - 56 -

-(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl;

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl; and

R<sup>10</sup> is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1.5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $-S(O)_{0.2}R^9$ ,  $-O(CH_2)_{1.10}$ -COOR<sup>6</sup>,  $-O(CH_2)_{1.10}CONR^6R^7$ ,  $-CF_3$ , -CN,  $-NO_2$  and halogen;

### (e) Formula (VI):

$$R_4$$
 $R_1$ 
 $R_2$ 
 $R_3$ 
 $R_{20}$ 
 $R_{21}$ 
 $R_{21}$ 
 $R_{20}$ 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

$$-\dot{C}H_{-}$$
,  $-\dot{C}(lower alkyl)_{-}$ ,  $-\dot{C}F_{-}$ ,  $-\dot{C}(OH)_{-}$ ,  $-\dot{C}(C_{6}H_{5})_{-}$ ,  $-\dot{C}(C_{6}H_{4}-R_{15})_{-}$ ,  $-\dot{N}_{-}$  or  $-\dot{N}_{-}$  or  $-\dot{N}_{-}$  or  $-\dot{N}_{-}$ 

R2 and R3 are independently selected from the group consisting of:

-CH2-, -CH(lower alkyl)-, -C(di-lower alkyl)-, -CH=CH- and -C(lower alkyl)=CH-; or

R1 together with an adjacent R2, or R1 together with an adjacent R3, form a

-CH=CH- or a -CH=C(lower alkyl)- group;

u and v are independently 0, 1, 2 or 3, provided both are not zero; provided that when R2 is -CH=CH- or -C(lower alkyl)=CH-, v is 1; provided that when R3 is

-CH=CH- or -C(lower alkyl)=CH-, u is 1; provided that when v is 2 or 3, the R2's can be the same or different; and provided that when u is 2 or 3, the R3's can be the same or different;

<u>R4 is selected from B-(CH2)mC(O)-, wherein m is 0, 1, 2, 3, 4 or 5;</u> <u>B-(CH2)q-, wherein q is 0, 1, 2, 3, 4, 5 or 6;</u>

B- $(CH_2)_{e}$ -Z- $(CH_2)_{r}$ -, wherein Z is -O-, -C(O)-, phenylene, -N(R<sub>8</sub>)- or -S(O)<sub>0-2</sub>-, e is 0, 1, 2, 3, 4 or 5 and r is 0, 1, 2, 3, 4 or 5, provided that the sum of e and r is 0, 1, 2, 3, 4, 5 or 6;

B-(C2-C6 alkenylene)-;

B-(C4-C6 alkadienylene)-;

B-(CH<sub>2</sub>)t-Z-(C<sub>2</sub>-C<sub>6</sub> alkenylene)-, wherein Z is as defined above, and wherein t is 0, 1, 2 or 3, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1, 2, 3, 4 or 5 and g is 0, 1, 2, 3, 4 or 5, provided that the sum of f and g is 1, 2, 3, 4, 5 or 6;

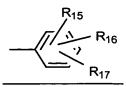
B-(CH<sub>2</sub>)t-V-(C<sub>2</sub>-C<sub>6</sub> alkenylene)- or

B-(C2-C6 alkenylene)-V-(CH2)t-, wherein V and t are as defined above, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>a</sub>-Z-(CH<sub>2</sub>)<sub>b</sub>-V-(CH<sub>2</sub>)<sub>d</sub>-, wherein Z and V are as defined above and a, b and d are independently 0, 1, 2, 3, 4, 5 or 6, provided that the sum of a, b and d is 0, 1, 2, 3, 4, 5 or 6; or T-(CH<sub>2</sub>)<sub>s</sub>-, wherein T is cycloalkyl of 3-6 carbon atoms and s is 0, 1, 2, 3, 4, 5 or 6; or

R1 and R4 together form the group B-CH=C-;

B is selected from indanyl, indenyl, naphthyl, tetrahydronaphthyl, heteroaryl or W-substituted heteroaryl, wherein heteroaryl is selected from the group consisting of pyrrolyl, pyridinyl, pyrimidinyl, pyrazinyl, triazinyl, imidazolyl, thiazolyl, pyrazolyl, thienyl, oxazolyl and furanyl, and for nitrogen-containing heteroaryls, the N-oxides thereof, or



W is 1 to 3 substituents independently selected from the group consisting of lower alkyl, hydroxy lower alkyl, lower alkoxy, alkoxyalkyl, alkoxyalkoxy, lower alkyl, lower alkyl, lower alkyl lower alkyl lower alkyl lower alkyl, lower alkyl, lower alkyl, lower alkylenzyl, benzyloxy, benzyloxy, alkylenzyloxy, phenoxy, alioxolanyl, NO2,-N(R8)(R9), N(R8)(R9)-lower alkylenzyloxy-, OH, halogeno, -CN, -N3, -NHC(O)OR10, -NHC(O)R10, R11O2SNH-, (R11O2S)2N-, -S(O)2NH2, -S(O)0-2R8, tert-butyldimethyl-silyloxymethyl, -C(O)R12, -COOR19, -CON(R8)(R9), -CH=CHC(O)R12, -lower alkylene-C(O)R12, R10C(O)(lower alkylenyloxy)-,

 $N(R_8)(R_9)C(O)$  (lower alkylenyloxy)- and  $R_{13}$  for substitution on ring carbon atoms,

and the substituents on the substituted heteroaryl ring nitrogen atoms, when present, are selected from the group consisting of lower alkyl, lower alkoxy, -C(O)OR<sub>10</sub>, -C(O)R<sub>10</sub>, OH, N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylene-,N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylenyloxy-, -S(O)<sub>2</sub>NH<sub>2</sub> and 2-(trimethylsilyl)-ethoxymethyl;

R7 is 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, -COOH, NO2, -N(R8)(R9), OH, and halogeno;

R8 and R9 are independently selected from H or lower alkyl;

R<sub>10</sub> is selected from lower alkyl, phenyl, R<sub>7</sub>-phenyl, benzyl or R<sub>7</sub>-benzyl;

R<sub>11</sub> is selected from OH, lower alkyl, phenyl, benzyl, R<sub>7</sub>-phenyl or R<sub>7</sub>-benzyl; R<sub>12</sub> is selected from H, OH, alkoxy, phenoxy, benzyloxy,

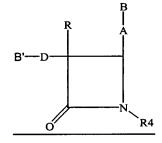
R<sub>13</sub> is selected from -O-, -CH<sub>2</sub>-, -NH-, -N(lower alkyl)- or -NC(O)R<sub>19</sub>;

R15, R16 and R17 are independently selected from the group consisting of H and the groups defined for W; or R15 is hydrogen and R16 and R17, together with adjacent carbon atoms to which they are attached, form a dioxolanyl ring;

R<sub>19</sub> is H, lower alkyl, phenyl or phenyl lower alkyl; and

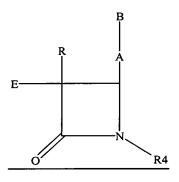
R20 and R21 are independently selected from the group consisting of phenyl, W-substituted phenyl, naphthyl, W-substituted naphthyl, indanyl, indenyl, tetrahydronaphthyl, benzodioxolyl, heteroaryl, W-substituted heteroaryl, benzofused heteroaryl, W-substituted benzofused heteroaryl and cyclopropyl, wherein heteroaryl is as defined above;

#### (f) Formula (VIIA) or (VIIB):



(VIIA)

<u>or</u>



(VIIB)

or a pharmaceutically acceptable salt or solvate thereof, wherein:

A is -CH=CH-, -C $\equiv$ C- or -(CH<sub>2</sub>)<sub>p</sub>- wherein p is 0, 1 or 2; B is

$$\begin{array}{c} R_1 \\ R_2 \\ R_3 \end{array}$$

<u>B' is</u>

D is -(CH<sub>2</sub>)<sub>m</sub>C(O)- or -(CH<sub>2</sub>)<sub>q</sub>- wherein m is 1, 2, 3 or 4 and q is 2, 3 or 4;

E is C<sub>10</sub> to C<sub>20</sub> alkyl or -C(O)-(C<sub>9</sub> to C<sub>19</sub>)-alkyl, wherein the alkyl is straight or branched, saturated or containing one or more double bonds;

R is hydrogen, C<sub>1</sub>-C<sub>15</sub> alkyl, straight or branched, saturated or containing one or more double bonds, or B-(CH<sub>2</sub>)<sub>r</sub>-, wherein r is 0, 1, 2, or 3;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> are independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, carboxy, NO<sub>2</sub>, NH<sub>2</sub>, OH, halogeno, lower alkylamino, dilower alkylamino, -NHC(O)OR<sub>5</sub>, R<sub>6</sub>O<sub>2</sub>SNH- and -S(O)<sub>2</sub>NH<sub>2</sub>;

<u>R4\_is</u>

$$-\sqrt{(OR_5)_n}$$

wherein n is 0, 1, 2 or 3;

R5 is lower alkyl; and

R6 is OH, lower alkyl, phenyl, benzyl or substituted phenyl wherein the substituents are 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, carboxy, NO2, NH2, OH, halogeno, lower alkylamino and dilower alkylamino;

(g) Formula (VIII):

$$Ar^1-R^1-Q$$
 $R^{26}$ 
 $N$ 
 $Ar^2$ 

(VIII)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (VIII) above,

R<sup>26</sup> is H or OG<sup>1</sup>;

G and G<sup>1</sup> are independently selected from the group consisting of

$$\underbrace{H.} \quad \underbrace{\bigcirc \mathsf{QR}^5 \quad \mathsf{OR}^4}_{\mathsf{O} = \mathsf{QR}^2} \quad \underbrace{\bigcirc \mathsf{QR}^5 \quad \mathsf{OR}^4}_{\mathsf{UIOR}^3} \quad \underbrace{\bigcirc \mathsf{CH}_2 \mathsf{OR}^6}_{\mathsf{OR}^3} \quad \underbrace{\bigcirc \mathsf{CH}_2 \mathsf{OR}^6}_{\mathsf{OR}^3} \quad \underbrace{\bigcirc \mathsf{CR}^7}_{\mathsf{UIOR}^5}$$

and 
$$R^{4a}O$$
  $CH_2R^b$ ; provided that when  $R^{26}$  is H or

OH, G is not H;

R, R<sup>a</sup> and R<sup>b</sup> are independently selected from the group consisting of H, -OH, halogeno, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)-alkoxy or -W-R<sup>30</sup>;

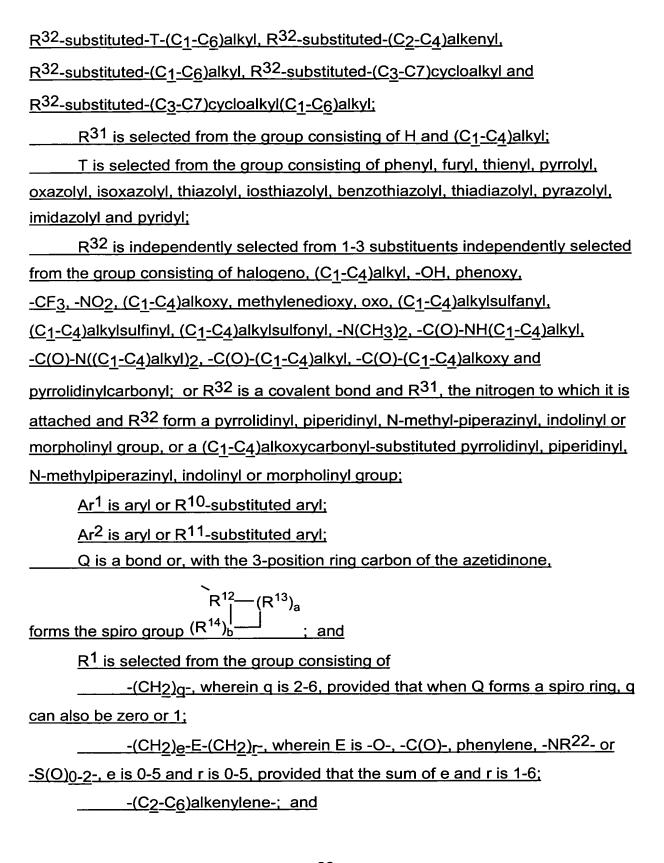
W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R<sup>31</sup>)-, -NH-C(O)-N(R<sup>31</sup>)- and -O-C(S)-N(R<sup>31</sup>)-;

R<sup>2</sup> and R<sup>6</sup> are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl(C1-C6)alkyl;

R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>3a</sup> and R<sup>4a</sup> are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl and -C(O)aryl;

R<sup>30</sup> is selected from the group consisting of R<sup>32</sup>-substituted T,

- 62 -



-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6;

R<sup>12</sup> is

$$\begin{array}{c} \stackrel{1}{\text{-CH-, -C(C_{1}\text{-}C_{6} \text{ alkyl)-, -CF-, -C(OH)-, -C(C_{6}H_{4}\text{-}R^{23})-, -N-, or } \\ -\stackrel{1}{\text{CH-, -C(C_{1}\text{-}C_{6} \text{ alkyl})-, -CF-, -C(OH)-, -C(C_{6}H_{4}\text{-}R^{23})-, -N-, or } \\ -\stackrel{1}{\text{CH-, -C(C_{1}\text{-}C_{6} \text{ alkyl})-, -CF-, -C(OH)-, -C(C_{6}H_{4}\text{-}R^{23})-, -N-, or } \\ -\stackrel{1}{\text{CH-, -C(C_{1}\text{-}C_{6} \text{ alkyl})-, -C(C_{1}\text{-}C_{1}\text{$$

R<sup>13</sup> and R<sup>14</sup> are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sup>13</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when R<sup>14</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the R<sup>14</sup>'s can be the same or different; and when Q is a bond, R<sup>1</sup> also can be:

M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub>)alkyl- and -C(di-(C<sub>1</sub>-C<sub>6</sub>)alkyl);

R<sup>10</sup> and R<sup>11</sup> are independently selected from the group consisting of 1-3 substituents independently selected from the group consisting of (C<sub>1</sub>-C<sub>6</sub>)alkyl, -OR<sup>19</sup>, -O(CO)R<sup>19</sup>, -O(CO)OR<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1</sub>-5OR<sup>19</sup>, -O(CO)NR<sup>19</sup>R<sup>20</sup>, -NR<sup>19</sup>R<sup>20</sup>, -NR<sup>19</sup>(CO)R<sup>20</sup>, -NR<sup>19</sup>(CO)OR<sup>21</sup>, -NR<sup>19</sup>(CO)NR<sup>20</sup>R<sup>25</sup>, -NR<sup>19</sup>SO<sub>2</sub>R<sup>21</sup>, -COOR<sup>19</sup>, -CONR<sup>19</sup>R<sup>20</sup>, -COR<sup>19</sup>, -SO<sub>2</sub>NR<sup>19</sup>R<sup>20</sup>, S(O)<sub>0</sub>-2R<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1</sub>-10</sub>-COOR<sup>19</sup>, -O(CH<sub>2</sub>)<sub>1</sub>-10</sub>CONR<sup>19</sup>R<sup>20</sup>, -(C<sub>1</sub>-C<sub>6</sub> alkylene)-COOR<sup>19</sup>, -CH=CH-COOR<sup>19</sup>, -CF<sub>3</sub>, -CN, -NO<sub>2</sub> and halogen; wo<sub>176270.1</sub>} - 64 -

R<sup>15</sup> and R<sup>17</sup> are independently selected from the group consisting of -OR<sup>19</sup>, -O(CO)R<sup>19</sup>, -O(CO)OR<sup>21</sup> and -O(CO)NR<sup>19</sup>R<sup>20</sup>;

R<sup>16</sup> and R<sup>18</sup> are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl and aryl; or R<sup>15</sup> and R<sup>16</sup> together are =0, or R<sup>17</sup> and R<sup>18</sup> together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and

provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

R<sup>15</sup>
-X<sub>j</sub>-(C)<sub>v</sub>-Y<sub>k</sub>-S(O)<sub>0-2</sub>-R<sup>16</sup>, Ar<sup>1</sup> can also be

and when Q is a bond and R<sup>1</sup> is R<sup>16</sup>, Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl-substituted (C1-C6)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(0)R<sup>19</sup> or -COOR<sup>19</sup>;

R<sup>23</sup> and R<sup>24</sup> are independently 1-3 groups independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, -COOH, NO<sub>2</sub>.

-NR<sup>19</sup>R<sup>20</sup>, -OH and halogeno; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy; and

(h) Formula (IX):

$$Ar^1$$
 $R^{26}$ 
 $R^8$ 
 $O$ 
 $Ar^2$ 
 $(IX)$ 

or a pharmaceutically acceptable salt or solvate thereof, wherein in Formula (IX):

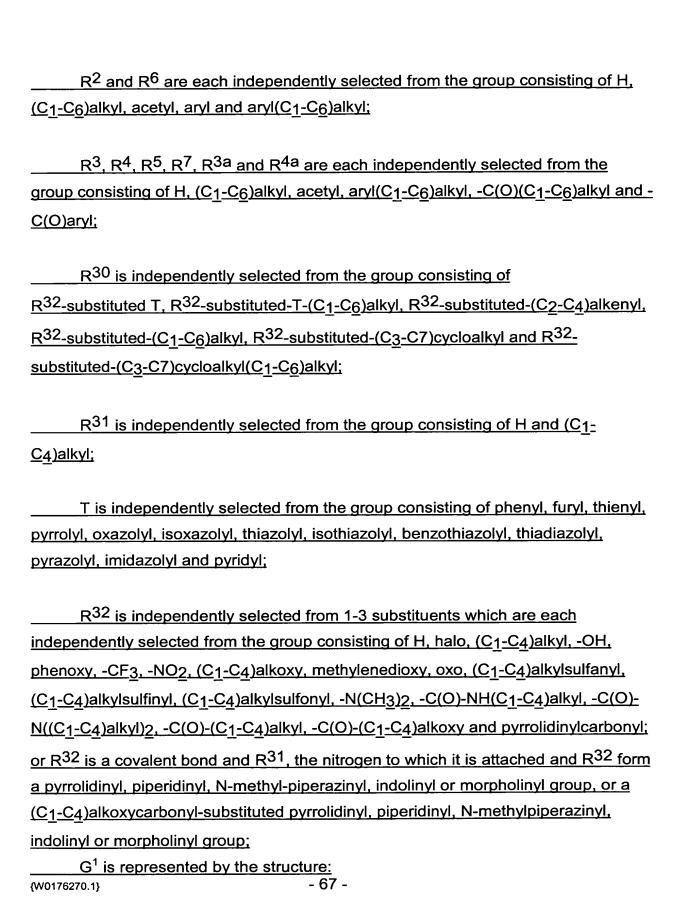
R<sup>1</sup> is selected from the group consisting of H, G, G<sup>1</sup>, G<sup>2</sup>, -SO<sub>3</sub>H and -PO<sub>3</sub>H;

G is selected from the group consisting of: H,

$$R^{5}O$$
  $OR^{4}$   $R^{5}O$   $OR^{4}$   $OR^{7}$   $O$ 

wherein R, R<sup>a</sup> and R<sup>b</sup> are each independently selected from the group consisting of H, -OH, halo, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R<sup>31</sup>)-, -NH-C(O)-N(R<sup>31</sup>)- and -O-C(S)-N(R<sup>31</sup>)-;



wherein R<sup>33</sup> is independently selected from the group consisting of unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, (R<sup>35</sup>)(R<sup>36</sup>)alkyl-,

R<sup>34</sup> is one to three substituents, each R<sup>34</sup> being independently selected from the group consisting of HOOC-, HO-, HS-, (CH<sub>3</sub>)S-, H<sub>2</sub>N-, (NH<sub>2</sub>)(NH)C(NH)-, (NH<sub>2</sub>)C(O)- and HOOCCH(NH<sub>3</sub><sup>+</sup>)CH<sub>2</sub>SS-;

R<sup>35</sup> is independently selected from the group consisting of H and NH<sub>2</sub>-;

R<sup>36</sup> is independently selected from the group consisting of H, unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, unsubstituted cycloalkyl and R<sup>34</sup>-substituted cycloalkyl;

G<sup>2</sup> is represented by the structure:

wherein  $R^{37}$  and  $R^{38}$  are each independently selected from the group consisting of  $(C_1-C_6)$  alkyl and aryl;

R<sup>26</sup> is one to five substituents, each R<sup>26</sup> being independently selected from the group consisting of:

- a) H;
- b) -OH;
- c) -OCH<sub>3</sub>;
- d) fluorine;

{W0176270.1}

- e) chlorine;
- f) \_\_O-G;
- $q) -O-G^{1};$
- h) -O-G<sup>2</sup>;
- i) -SO<sub>3</sub>H; and
- i)  $-PO_3H$ ;

provided that when R<sup>1</sup> is H, R<sup>26</sup> is not H, -OH, -OCH<sub>3</sub> or -O-G;

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl, heteroaryl or R<sup>10</sup>-substituted heteroaryl;

Ar<sup>2</sup> is aryl, R<sup>11</sup>-substituted aryl, heteroaryl or R<sup>11</sup>-substituted heteroaryl;

L is selected from the group consisting of:

- a) a covalent bond;
- b) -( $CH_2$ )<sub>q</sub>-, wherein q is 1-6;
- c) -(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>-, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;
- d) –(C<sub>2</sub>-C<sub>6</sub>)alkenylene-;
- e) -(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub>cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6; and

<u>f)</u>

$$- M - Y_d - C_{R_{16}}^{R_{15}} - Z_h - Z_m - (C_{l_s} - Z_p)_{Or} - (C_{l_s} - Z_p)_{Or$$

wherein M is  $-O_{-}, -S_{-}, -S_{-},$ 

X, Y and Z are each independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6)$ alkyl- and  $-C(di-(C_1-C_6)$ alkyl)-;

{W0176270.1} - 69 -

R<sup>8</sup> is selected from the group consisting of H and alkyl;

R <sup>10</sup> and R <sup>11</sup> are each independently selected from the group consisting of 1-
3 substituents which are each independently selected from the group consisting of
(C1-C6)alkyl, -OR <sup>19</sup> , -O(CO)R <sup>19</sup> , -O(CO)OR <sup>21</sup> , -O(CH <sub>2</sub> )1-5OR <sup>19</sup> , -
O(CO)NR <sup>19</sup> R <sup>20</sup> , -NR <sup>19</sup> R <sup>20</sup> , -NR <sup>19</sup> (CO)R <sup>20</sup> , -NR <sup>19</sup> (CO)OR <sup>21</sup> ,
-NR <sup>19</sup> (CO)NR <sup>20</sup> R <sup>25</sup> , -NR <sup>19</sup> SO <sub>2</sub> R <sup>21</sup> , -COOR <sup>19</sup> , -CONR <sup>19</sup> R <sup>20</sup> , -COR <sup>19</sup> , -
SO2NR <sup>19</sup> R <sup>20</sup> , S(O) <sub>0-2</sub> R <sup>21</sup> , -O(CH <sub>2</sub> ) <sub>1-10</sub> -COOR <sup>19</sup> , -O(CH <sub>2</sub> ) <sub>1-10</sub> CONR <sup>19</sup> R <sup>20</sup> , -
(C <u>1-C6 alkylene)-COOR<sup>19</sup>, -CH=CH-COOR<sup>19</sup>, -CF3, -CN, -NO<sub>2</sub> and halo;</u>
$R^{15}$ and $R^{17}$ are each independently selected from the group consisting of $-OR^{19}$ , $-OC(O)R^{19}$ , $-OC(O)OR^{21}$ , $-OC(O)NR^{19}R^{20}$ ;
$R^{16}$ and $R^{18}$ are each independently selected from the group consisting of H, $(C_1-C_6)$ alkyl and aryl;
<u>(C<sub>1</sub>-C<sub>6</sub>)aikyi and aryi,</u>
or R <sup>15</sup> and R <sup>16</sup> together are =O, or R <sup>17</sup> and R <sup>18</sup> together are =O;
d is 1, 2 or 3;
h is 0, 1, 2, 3 or 4;
s is 0 or 1;
t is 0 or 1;
m, n and p are each independently selected from 0-4;
provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6;
provided that when p is 0 and t is 1, the sum of m, n and p is 1-5; and provided that
when p is 0 and s is 1, the sum of m, t and n is 1-5;
v is 0 or 1;
j and k are each independently 1-5, provided that the sum of j, k and v is 1-5;

Q is a bond, -(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 1-6, or, with the 3-position ring carbon of the azetidinone, forms the spiro group

$$R^{12}$$
— $(R^{13})_a$   
 $(R^{14})_b$ —;

wherein R<sup>12</sup> is

-CH-, -C(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sup>23</sup>)-, -N-, or 
$$-^{+}NO^{-}$$
;

R<sup>13</sup> and R<sup>14</sup> are each independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are each independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sup>13</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when R<sup>14</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the R<sup>14</sup>'s can be the same or different;

and when Q is a bond and L is

then Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>;

R<sup>23</sup> and R<sup>24</sup> are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of H, (C1-C6)alkyl, (C1-C6)alkoxy, -COOH, NO<sub>2</sub>, -NR<sup>19</sup>R<sup>20</sup>, -OH and halo; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy.